Switching Mediterranean Consumers to Mediterranean Sustainable Healthy Dietary Patterns

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History of changes

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0.3	BUU	12.12.22	3rd draft
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0.5	BUU	20.02.23	5th draft
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Table 1: History of changes

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ABBREVIATIONS and ACRONYMS

Abbreviation / Acronym	Description
BMI	Body mass index
MD	Mediterranean Diet
KIDMED	The Mediterranean Diet Quality Index
MEDAS	The Mediterranean Diet Adherence Screener
MEDLIFE	Mediterranean Lifestyle Questionnaire
PRIMA	Partnership for research and innovation in the Mediterranean area

Table 2: Abbreviation and Acronyms

Executive Summary

This document constitutes the scientific report of the research carried out in the WP1 - Task 1.2, led by Bursa Uludag University. In this project task (WP1, Task 1.2.), it was aimed to clarify four issues mentioned in the project proposal, which are thought to be effective in the widespread role of the Mediterranean diet (MD) in society. The purposes were to evaluate, through a survey conducted among families of 6 mediterranean countries: a) adherence to MD of children and adults, b) consumers' behavior towards MD, c) family relationships that interact with MD and d) Mediterranean lifestyle habits.

In the introduction section, the characteristics of the MD and its benefits for human health and well-being when combined with a healthy lifestyle are summarized.

The survey included internationally accepted indexes and questions prepared to provide the information specified in the project objectives. The international indexes used in the survey were: MD Adaptation Screening (MEDAS), MD Quality Index (KIDMED), and Mediterranean Lifestyle Index (MEDLIFE). In addition to these indexes, the questionnaire also included demographic information, questions evaluating family relationships, and an assessment of drivers and barriers to MD adherence.

The survey was planned to be conducted in 6 countries (Spain, Türkiye, Italy, Egypt, Lebanon, and Morocco). However, due to some country specific problems, Morocco and Egypt voluntarily withdrew from the survey. As a result, the questionnaire was administered to 812 respondents in a total of 4 countries.

Considering the results of the survey, more than 30% of the surveyed adult participants were overweight and 14% were obese. The mean BMI among male participants in the four Mediterranean countries (Italy, Spain, Türkiye and Morocco) was significantly higher than that of females and falled within the overweight range. On the other hand, 1/3 of the population had a diagnosed chronic disease. The rate of individuals using vitamin supplements or having vitamin deficiency in this population was over 25%.

According to the total average score in the MEDAS scale, the population studied were generally in the acceptable adherence range, without differences between countries. This means that in the analyzed adult population the adherence to MD was generally acceptable. The mean score of MEDLIFE was 16.2, showing an intermediate adherence to MD lifestyle, since this score goes from 0 to 28 points. Importantly, a high percentage of the surveyed participants was classified in the first quartile (31.5%), indicating that an important number of our population had a low adherence to MD lifestyle. When MEDLIFE scores were compared, significant differences were determined, since Lebanon showed significantly higher scores compared to other countries.

Overall, children showed an average adherence to MD according to KIDMED scores, with a mean value of 6.18 in a scale that goes from 0 to 12. Looking at the countries separately, there were no significant differences.

On the other hand, the drivers to MD adherence that obtained the highest scoring in our population were (by order of punctuation):

1- The MD is a diet that includes healthier and more nutritious foods

2- The MD contains healthier fats

3- The MD encourages to consume more fruits and vegetables and less red meat

4- MD is a diet with less processed food

5- More homemade food consumption is possible with MD.

These factors bring people closer to following the MD.

Regarding factors that prevent adherence to the MD (barriers), these were the ones more relevant in our population, in order of importance:

1- MD contains high-priced foods

2- There are limited options in restaurants for individuals who want to apply MD

3- It is difficult and time consuming to prepare suitable meals

4- MD is not preferred because it is not suitable for vegans

5- MD contains allergen foods

Besides identifying the factors that support or hinder adherence to the MD, the results of the present survey provides the data source that will be used in the next work packages of the project in order to help in the designing of the best strategy to increase adherence to MD in our society.

1. Introduction

Nutrition, which is defined as 'growth, sustaining life and the use of nutrients for the protection of health' constitutes the basis of health by being at the forefront of environmental conditions (Mahan et al., 2008). Studies have shown that the nutritional content of a person's diet, lifestyle, eating habits, cultural and psychological aspects have positive and negative effects on health. Psycho-social factors such as workload, stress, anxiety, family, and community support are related to lifestyle and significantly affect quality of life.

High consumption of vegetables and fruits, legumes, whole grain products, healthy oils, fish and low-fat milk and dairy products have been proven to decrease the risk of developing chronic non-communicable diseases, especially cardiovascular diseases, diabetes, and cancer (NCEP, 2002). Keys et al. (1986), in their study examining the nutritional habits of individuals, found that the incidence of cardiovascular disease in Mediterranean populations was relatively lower compared to other populations, and they named the dietary pattern of people living in this region as 'MD'.

The MD constitutes a set of skills, knowledge, practices, and traditions ranging from agricultural cultivation, processing, preparation and especially food consumption, and is defined as a unique lifestyle accepted as a common cultural heritage of Mediterranean societies (Davis et al. 2015). MD is essentially a plant-based diet model based on high consumption of fresh fruits and vegetables, grains and legumes as the main source of fiber and antioxidant-rich ingredients (Sotos-Prieto et al. 2021).

In recent years, studies relating diet to health, people's desire to improve health and prolong life have increased the interest in proper nutrition (Ozden, 2019). There is scientific evidence of the protective role of the MD against many chronic diseases, especially cardiovascular diseases, Type-2 diabetes and obesity (Barbaros and Kabaran, 2014). In addition, due to the low impact of the Mediterranean nutrition model on the environment, its use as a sustainable nutrition model is emphasized (Benedetti et al., 2016). It is known that this diet model has a low ecological, carbon and water footprint since the MD consists of high percentage of plant-derived foods (Aboussaleh et al., 2017). The idea of improving people's health, the positive effects of the MD on chronic diseases, the fact that it is a sustainable nutrition model, and less negative effects on the environment are the factors that can increase adherence to the MD.

Considering the factors that can reduce adherence to the MD; although the MD is classified as low-cost, it has been observed that even individuals who adhere to the MD principles for economic reasons have changed their eating habits (Serra Majen et al., 2020). In addition, it is seen that the time devoted to preparing food has decreased compared to the old times, and people prefer affordable meat dishes that are ready to eat (D'Innocenzo et al., 2019). Besides all these, the allergenic foods (such as lactose, gluten, casein) contained in the MD model may be considered among the factors that reduce adherence to the MD.

In the last decade, the significance of the MD diet model in Mediterranean countries and the adherence to this diet in societies had decreased, due to reasons such as the increase in food prices, increased market shares regarding ultra-processed food, or globalization. Thus, it has aimed to conduct a survey in 6 Mediterranean countries in order to obtain what is the adherence of the different members of the families to MD in different Mediterranean countries and the related lifestyle habits nowadays, and secondly, to identify the main drivers and barriers that can favor or hinder adherence to MD.

2.   Materials and Methods

This study was carried out within the scope of the European Union PRIMA project titled 'Switching Mediterranean consumers to Mediterranean sustainable healthy dietary patterns' and numbered as SWITCHtoHEALTHY-GA 2133.

2.1.   Research Design in General

An observational cross-sectional study was conducted. A survey was applied to volunteered individuals, that was prepared to evaluate the adherence of family members to the MD and the factors that could be related to this adherence. All parts of the survey were filled out by the researchers using face-to-face interview technique or by the volunteers themselves using online forms. Egypt, Spain, Italy, Türkiye, Lebanon and Morocco were planned to participate in the research. Morocco was subsequently withdrawn from the research universe. This research was conducted between July and October 2022. The main inclusion criterion was defined as being ≥ 18 years old to voluntarily fill out the questionnaire. Individuals who did not accept to participate in the research, who did not volunteer and those who started the research and wanted to leave afterward were not included in the survey. Their declarations about their actions were taken with the "Informed Voluntary Consent Form". At the end of the research, it was aimed to reach at least 1200 individuals (200 surveys per country). Considering the presumptive losses during the research, this number was determined as 1500. The survey was concluded with 812 participants since Morocco was withdrawn from the research universe during the research and Egypt was excluded from the research universe due to some technical reasons. The surveys were conducted anonymously and translated into the language of the country in which they were conducted.

In Spain and Türkiye, the indexes MEDAS, MEDLIFE and KIDMED were previously validated. In Italy, MEDAS and KIDMED have been validated, although there is no validity and reliability study for the MEDLIFE index. However, it has been reported that the MEDLIFE index is easy to understand locally and therefore its application is reliable. In Lebanon and Egypt, although the validity and reliability studies of these indexes in their local languages have not been carried out before, it has been stated that the validity and intelligibility of the questionnaires used by Lebanon has been tested by the public through preliminary studies and tests.

2.2. Data Collection and Evaluation

2.2.1. Application Methodology of the Survey

Questionnaires were filled in by using face-to-face and online interview techniques.

2.2.2. Survey Sections

The survey was consisted of the following section**s.**

General information: This section consists of 2 parts: Part 1 is sociodemographic characteristics, part 2 is information on health status, eating habits, lifestyle, and digital tool use. The first part includes 13 questions about personal information such as age, gender, income status, number of children. Anthropometric measurements of individuals (body weight, height) are also included in this part. Body weight and height was taken based on the declaration. The second part of the section includes of 24 questions about disease status, drug usage, nutritional habits, and digital tool usage tendencies.

Family relations: This part includes 8 questions regarding familiar dietary habits such as 'Do you have breakfast with the whole family?', 'Do you have dinner with the whole family?' and 'Does at least one parent accompany your child during dinner?'.

MEDAS INDEX: This index was used for the first time in the study called PREDIMED for investigation of Mediterranean eating habits in primary prevention of cardiovascular diseases by Martínez-González et al. (2012) and validity was made by Schröder et al. (2011) (Pehlivanoglu et al., 2019). This scale consists of 14 questions and includes questions about consumption of amount of olive oil consumed daily, fruit and

vegetable portions, margarine-butter and red meat consumption, wine, cereals, fish-seafood, snacks, nuts, cake, tomato sauce with olive oil by patients in meals. 1 or 0 points are taken for each question according to the amount of consumption, and the total score is calculated. A total score of 7 and above indicates that the individual has an acceptable degree of adherence to the MD, and a score of 9 and above indicates that the individual has a strict adherence to the MD (León-Munoz et al., 2012). As a result of the survey, the status of individuals having Mediterranean type eating habits is evaluated (Pehlivanoglu et al., 2019). The adaptation of the scale to Turkish and its validity and reliability were done by Pehlivanoglu et al., (2019). Necessary permissions about the scale were obtained from the authors. Validity and reliability studies of MEDAS indice have been done by the researchers mentioned in Spain (Martínez-González et al., 2012) and Italy (García-Conesa et.al.2020) before.

KIDMED INDEX: This scale was developed by Serra-Majem et al., (2004) and evaluates the adherence of children and adolescents aged 2-24 to the MD (Serra-Majem et al., 2004; Cabrera et al., 2015). KIDMED includes the nutritional habits suitable for the MD and the factors that negatively affect it. This index includes a 16-question test and is evaluated between 0 and 12 points. Evaluation is made by giving "-1" points to questions expressing a negative connotation about the MD and "+1" to those expressing a positive connotation. As a result of this evaluation, the nutritional habits of the individual are expressed as 'optimal MD' (≥8 points), 'average' (4-7 points, requiring improvement) and 'very low diet quality' (≤3 points) (Serra-Majem et al. et al., 2004). The adaptation of the scale to Turkish and its validity and reliability were done by Sahingoz and Sanlier (2011). Necessary permissions about the scale were obtained from the authors. This part of the questionnaire was filled only by parents with children aged 2-18. In this section, there were 4 KIDMED question group to be filled for a maximum of 4 children. Parents completed this part of the questionnaire together with their children or by asking their children's opinions. Validity and reliability studies of the KIDMED index were completed by the previously mentioned researchers in Spain (Serra-Majem et al., 2004) and Italy (Santomauro et.al., 2014).

Drivers and Barriers to the MD: In this section, 16 drivers and 11 barriers to the MD were identified by a review of the bibliography and presented to the volunteers in the questionnaire. These items were rated by a 5-point likert scale, being 1: not at all true for me, and 5: very true for me. Drivers were grouped according to the topic into health, diet quality, adherence, lifestyle, affordability, and environment. Barriers were grouped into health, lifestyle, and affordability.

MEDLIFE INDEX: The MEDLIFE Scale was developed by Sotos-Prieto et al. (2015) based on the Mediterranean lifestyle pyramid developed by the MD Foundation, in the light of recommendations for a lifestyle suitable for the MD, and it was validated in English by Sotos-Prieto et al., (2015b). It consists of 28 questions that score 1 point if the criteria expressed for each question are met or 0 points if are not met. The questionnaire is dived into 3 sections: Mediterranean food consumption (15 questions), MD habits (7+2 questions), and physical activity, rest, social habits, and conviviality (8 questions). In order to address seasonality and frugality in the Mediterranean lifestyle pyramid, 4 questions were added to the 28 questions, although these were not validated and thus, are not counted for the total score. So, this scale is scored between 0 and 28 points totally. A higher total score indicates a higher adherence to the Mediterranean lifestyle. The scale has no validity and reliability in Türkiye. For the adaptation of the scale to Turkish, ethical permission was obtained with Bursa Uludağ University, Health Sciences Research and Publication Ethics Committee session number 2022-03, Decision No. 1. Regarding Italy, MEDAS (García-Conesa et al., 2020) and KIDMED (Santomauro et al., 2014) questionnaires have been validated for Italian population, although MEDLIFE has not. No tool is validated in Lebanon and Egypt. MEDLIFE (Sotos-Prieto et al., 2015) questionnaires have been validated for the Spanish population.

2.2.3. Statistical Analysis

The data was examined by the Shapiro-Wilk test to determine whether or not it presents normal distribution. The results were presented as mean±standard deviation, median (minimum-maximum), or frequency and percentage. Normally distributed data were compared with independent samples t-test or one-way ANOVA. Kruskal Wallis and Mann Whitney U tests were used for non-normally distributed data. The Bonferroni test

was used as a multiple comparison test. Categorical variables were compared using Pearson's chi-square test and Fisher-Freeman-Halton test between groups. The Spearman correlation coefficient was calculated for the relationship between variables. Statistically, the significance level was accepted as $\alpha=0.05$. Statistical analyses were performed with IBM SPSS ver.28.0 (IBM Corp. Released 2021. IBM SPSS Statistics for Windows, Version 28.0. Armonk, NY: IBM Corp.).

3. Results

3.1. General Informations

3.1.1. Sociodemographic Characteristics

Table 3: Comparison of general sociodemographic characteristics by country

	Türkiye (n=201) n (%)	Italy (n=202) n (%)	Lebanon (n=209) n (%)	Spain (n=200) n (%)	Total (n=812) n (%)	χ^2	p
Gender							
Male	44(21.9)[a]	36(17.8)[a]	105(50.2)[b]	92(46)[b]	277(34.1)	73.968	**<0.001**
Female	157(78.1)	166(82.2)	104(49.8)	108(54)	535(65.9)		
Education Level							
Non-finished primary school	2(1)[a]	1(0.5)[a]	17(8.1)[b]	4(2)[a]	24(3)		
Primary school	10(5)[a]	0(0)[b]	24(11.5)[a]	22(11)[a]	56(6.9)		
Secondary school	10(5)[a]	12(5.9)[a]	38(18.2)[b]	9(4.5)[a]	69(8.5)		**<0.001**
High school	36(17.9)[ab]	52(25.7)[b]	30(14.4)[a]	30(15)[a]	148(18.2)	206.851	
Vocational school	15(7.5)[a]	14(6.9)[a]	20(9.6)[a]	57(28.5)[b]	106(13.1)		
University	69(34.3)	70(34.7)	74(35.4)	62(31)	275(33.9)		
Post-graduate	59(29.4)[a]	53(26.2)[a]	6(2.9)[b]	16(8)[b]	134(16.5)		
Parent's Working Status							
Both parents	99(49.3)[a]	112(55.4)[a]	43(20.6)[b]	123(61.5)[a]	377(46.4)		
Only father	73(36.3)[a]	39(19.3)[b]	134(64.1)[c]	60(30)[ab]	306(37.7)	136.275	**<0.001**
Only mother	14(7)	13(6.4)	8(3.8)	13(6.5)	48(5.9)		
None of the parents	15(7.5)[ab]	38(18.8)[c]	24(11.5)[bc]	4(2)[a]	81(10)		
Occupation							
Managers	23(11.4)[a]	24(11.9)[a]	9(4.3)[b]	12(6)[ab]	68(8.4)		
Academic laborer	62(30.8)[ab]	6(3)[a]	26(12.4)c	12(6)[bc]	106(13.1)		
Office worker	36(17.9)[ab]	88(43.6)[c]	31(14.8)[b]	55(27.5)[a]	210(25.9)		
Service worker	44(21.9)[a]	16(7.9)[b]	85(40.7)[c]	42(21)[a]	187(23)		
Agriculture and forestry worker	1(0.5)[a]	5(2.5)[b]	9(4.3)[a]	9(4.5)[a]	24(3)	293.140	**<0.001**
Blue-collar worker	5(2.5)[a]	28(13.9)[bc]	49(23.4)[c]	15(7.5)[ab]	97(11.9)		
Engine worker	11(5.5)[a]	7(3.5)[a]	0(0)[b]	16(8)[a]	34(4.2)		
Healthcare worker	15(7.5)[a]	25(12.4)[a]	0(0)[b]	21(10.5)[a]	61(7.5)		
Unskilled laborer	4(2)[a]	3(1.5)[a]	0(0)[a]	18(9)[b]	25(3.1)		
Household income status							
Low	17(8.5)[a]	19(9.4)[a]	144(68.9)[b]	24(12)[a]	204(25.1)		**<0.001**
Middle	143(71.1)[a]	141(69.8)[a]	56(26.8)[b]	146(73)[a]	486(59.9)	291.092	
High	41(20.4)[a]	42(20.8)[a]	9(4.3)[b]	30(15)[a]	122(15)		
Marital status							
Single	40(19.9)[a]	35(17.3)[a]	35(16.7)[a]	0(0)[b]	110(13.5)		**<0.001**
Separated/divorced	16(8)[a]	7(3.5)[a]	5(2.4)[ab]	0(0)[b]	28(3.4)	66.517	
Married/with partners	145(72.1)[a]	160(79.2)[a]	169(80.9)[ab]	200(100)[b]	674(83)		
Types of Family							
Elementary family	190(94.5)[ab]	197(97.5)[ab]	195(93.3)[b]	198(99)[a]	780(96.1)	11.16	**0.011**
Extended family	11(5.5)	5(2.5)	14(6.7)	2(1)	32(3.9)		
Number of children							
None	55(27.4)	61(30.2)	51(24.4)	49(24.5)	216(26.6)		
One	63(31.3)[a]	40(19.8)[b]	32(15.3)[b]	5(2.5)[c]	140(17.2)	104.642	**<0.001**
Two	67(33.3)[a]	79(39.1)[a]	62(29.7)[a]	106(53)[b]	314(38.7)		
≥Three	16(8)[a]	22(10.9)[ab]	64(30.6)[c]	40(20)[bc]	142(17.5)		
Who do you live with							

Alone	24(11.9)[ab]	15(7.4)[ab]	6(2.9)[bc]	0(0)[c]	45(5.5)	54.018	<0.001
With family	174(86.6)[a]	175(86.6)[a]	200(95.7)[b]	200(100)[c]	749(92.2)		
With friend	2(1)	2(1)	1(0.5)	0(0)	5(0.6)		
Other	1(0.5)[a]	10(5)[b]	2(1)[ab]	0(0)[a]	13(1.6)		
BMI categories							
Underweight	3(1.5)	8(4)	1(0.5)	5(2.5)	17(2.1)	32.893	<0.001
Normal	113(56.2)[ab]	125(61.9)[b]	88(42.1)[c]	95(47.5)[ac]	421(51.8)		
Overweight	57(28.4)[ab]	55(27.2)[b]	83(39.7)[a]	67(33.5)[ab]	262(32.3)		
Obese	28(13.9)[ab]	14(6.9)[b]	37(17.7)[a]	33(16.5)[a]	112(13.8)		

Pearson chi-Square and Fisher-Freeman-Halton tests were used. The Bonferroni test was used for pairwise comparisons. The "a", "b", and "c" superscripts show the results of pairwise comparisons between countries; values with unlike letters were significantly different among groups.

In general, the ratio of females (65.9%) was higher than that of males, although the ratio of males was significantly higher in Spain and Lebanon than in Italy and Türkiye. A statistically significant difference was found in the distribution of education levels by countries (p<0.001). In all countries, the highest ratio was at the university level. Spain displayed a significantly higher rate of the population reporting vocational school level (28.5%). In comparison, the ratio of the sample reporting to have not finished primary school was significantly higher in Lebanon (Table 3).

In every country, the working situation of the mother and father was dominant in the family (46.4%). This rate was higher in Spain and Italy (61.5% and 55.4% respectively). Lebanon presented the lowest ratio of families in which both parents worked (20.6%) and the highest ratio of families with only fathers working (64.1%), while Italy presented the lowest ratio of families with only fathers working and the highest ratio of families without parents working (19% for both cases). Most of the population who answered the questionnaire were office workers (25.9%) and service workers (23%) (Table 3).

The majority of the total participants had a middle-income level (59.9%) while 25.1% of the participants consisted of low-income individuals. The country rates according to the middle-income level were as follows: Türkiye (71.1%), Italy (69.8%), and Spain (73%). In contrast, the vast majority of Lebanese people had a low-income level (68.9%), being significantly higher than the other countries. The population of Italy, Türkiye and Spain with a high-income level was significantly higher than the population of Lebanon (Table 3).

Most of the total participants were married/with a partner (83%). Türkiye had the highest single population (19.9%). The majority of the total participants consisted of elemantary families (96.1%). 38.7% of the total participants had 2 children. The largest number of families with more than 3 children was in Lebanon (30.6% of the population). It was determined that 92.2% of the total participants lived with their families. The highest number of people who stated that they lived alone was in Türkiye (11.9% of the population) (Table 3).

Half of the total population had a BMI within the normal range (51.8%), 13.8% of the totaltotall population were obese and 32.3% of them were in the overweight range. Looking at the different countries, the obese population was significantly higher in Lebanon (17.7%) and Spain (16.5%) than in Italy that presented the lowest ratio (6.9%), while Türkiye presented an intermediate ratio of obese adults (13.9%). While 42.1% of the Lebanese population was in the normal range, 39.7% was in the overweight range (Table 3).

Table 4: Comparison of demographic characteristics (age, body weight, height and BMI) by country

	Türkiye (n=201)	Italy (n=202)	Lebanon (n=209)	Spain (n=200)	Total (n=812)	p
Age	40(22 - 61)[a]	43 (21-72)[b]	42(18 - 72)[b]	45.5 (27-72)[c]	41(18-72)	<0.001
	39.1 ± 8.6	42.1 ± 10.4	42.9 ± 13.2	46.1 ± 7.1	41 ± 11.1	
Age of children	13 (0.3-30)[ab]	14 (1-18)[a]	14 (0.3-30)[a]	12 (0.3-27)[b]	12(0.3-30)	<0.001
	13.4±7.8	12.5±5.6	14.6± 7.8	11.2±4.7	12.4± 6.7	
Body weight (kg)	65(48 - 120)[a]	63(41 - 115)[a]	75.0 (47-125)[b]	73(45 - 126)[b]	70(41-126)	<0.001
	70.1 ± 15.2	66.4 ± 13.9	75.4 ± 15.7	74.9 ± 16.6	72.2 ± 15.6	
Height (cm)	166(150- 205)[a]	165.0 (149-188)[a]	168.0 (148- 196)[ab]	170(150 - 198)[b]	165(148 - 205)	0.002
	167.5 ± 8.9	166.5 ± 7.7	168.3 ± 9.9	169.5 ± 8.6	166.7 ± 8.7	
BMI	24.2(17.9 - 39.1)[ab]	23.4 (17.3 - 38.4)[a]	26.1 (17.5 - 40)[b]	25(16.7 − 40.6)[b]	25.1(16.7 − 40.6)	<0.001
	24.9 ± 4.3	23.9± 4.1	26.5 ± 4.5	25.9 ± 4.7	25.9 ± 4.8	

Descriptive statistics were given as median (minimum–maximum) and mean ± standard deviation. Kruskal Wallis test was used. The Bonferroni test was used for pairwise comparisons. The "a", "b", and "c" superscripts show the results of pairwise comparisons between countries; values with unlike letters were significantly different among groups

The average age of the total participants was 41 years old. The average age of children was 12.4 years old. The average weight of the total participants was 72.2 Kg while the average height was 166.7 cm. The countries with the highest average body weight were Lebanon (75.4 Kg) and Spain (74.9 Kg). The country with the highest average height was Spain (169.5 cm). The average BMI of the total participants was 25.9 kg/m2, thus falling into the overweight category. Lebanon and Spain presented significantly higher BMI (26.5 and 25.9 respectively) than the other countries, which had a mean BMI within the normal range (Table 4).

Table5: Comparison of anthropometric measurements of each country by gender and comparison of anthropometric measurements regardless of country

		Male		Female		p
		mean ± sd	median (min–max)	mean ± sd	median (min–max)	
Türkiye	Body weight (kg)	87.8±13.95	85(65-120)	65.17±11.32	63(48-100)	**<0.001**
	Height (cm)	179.36±8.45	178(166-205)	164.18±5.54	164(150-180)	**<0.001**
	BMI	27.24±3.5	26.63(20.9-38.06)	24.21±4.26	23.44(17.93-39.06)	**<0.001**
Italy	Body weight (kg)	82.6±14.73	81(55-115)	62.92±11.01	60(41-100)	**<0.001**
	Height (cm)	176.33±6.42	176.5(164-188)	164.34±6.08	165(149-178)	**<0.001**
	BMI	26.54±4.47	25.75(19.44-38.42)	23.28±3.78	22.59(17.29-35.43)	**<0.001**
Lebanon	Body weight (kg)	83.74±14.69	80(56-125)	67.03±11.64	66.5(47-100)	**<0.001**
	Height (cm)	174.78±7.92	175(150-196)	161.74±6.92	162(148-180)	**<0.001**
	BMI	27.38±4.26	26.45(19.84-39.06)	25.67±4.52	24.95(17.47-40)	**0.004**
Spain	Body weight (kg)	83.88±14.87	80.5(54-126)	67.23±13.91	66.5(45-120)	**<0.001**
	Height (cm)	175.86±6.29	176(155-198)	163.99±6.09	164.5(150-180)	**<0.001**
	BMI	27.13±4.60	26.37(16.67-40.40)	24.93±4.56	24.19(17.78-40.56)	**<0.001**
Total	Body weight (kg)	84.28±14.65	80(54-126)	65.25±11.95	63(41-120)	**<0.001**
	Height (cm)	176.07±7.44	176(150-205)	163.72±6.17	164(148-180)	**<0.001**
	BMI	27.16±4.28	26.45(16.67-40.40)	24.35±4.31	23.67(17.29-40.56)	**<0.001**

Descriptive statistics were given as median (minimum–maximum) and mean ± standard deviation. Mann-Whitney U and independent samples t-tests were used.

The mean BMI of the total female participants was 24.35 kg/m2 (Normoweight) while the mean BMI of the total male participants was 27.16 kg/m2 (Overweight). As expected, body weight, height and BMI were significantly higher in males than in females in all the countries (Table 5).

3.1.2. Information Related to Health Status, Nutrition Habits, Lifestyle, and Use of Digital Tools

Table 6: Comparison of health status parameters by country

	Türkiye (n=201) n (%)	Italy (n=202) n (%)	Lebanon (n=209) n (%)	Spain (n=200) n (%)	Total (n=812) n (%)	χ²	p
What do you think is your health status?							
Excellent	10(5)[a]	9(4.5)[a]	26(12.4)[b]	9(4.5)[a]	54(6.7)		
Very good	39 (19.4)[abc]	56(27.7)[c]	26(12.4)[b]	47(23.5)[ac]	168(20.7)		
Good	108(53.7)[ab]	90(44.6)[b]	93(44.5)[b]	133(66.5)[a]	424(52.2)	95.065	**<0.001**
Fair	41(20.4)[a]	44(21.8)[a]	45(21.5)[a]	11(5.5)[b]	141(17.4)		
Poor	3(1.5)[a]	3(1.5)[a]	19(9.1)[b]	0(0)[a]	25(3.1)		
Do you have any chronic disease diagnosed by a doctor?							
Yes	67(33.3)	61(30.2)	80(38.3)	52(26)	260(32)	7.557	0.056
No	134(66.7)	141(69.8)	129(61.7)	148(74)	552(68)		
Chronic diseases							

	Türkiye	Italy	Lebanon	Spain	Total	χ²	p
Cardiovascular diseases	4(2)ᵃ	6(3)ᵃ	20(9.6)ᵇ	4(2)ᵃ	34(4.2)	20.640	**<0.001**
Neurological diseases	3(1.5)ᵃ	2(1)ᵃ	22(10.5)ᵇ	1(0.5)ᵃ	28(3.4)	42.646	**<0.001**
Renal diseases	1(0.5)	2(1)	7(3.3)	1(0.5)	11(1.4)	6.548	0.066
Other	9(4.5)ᵃ	28(13.9)ᵇ	16(7.7)ᵃᵇ	9(4.5)ᵃ	62(7.6)	16.733	**<0.001**
Diabetes	7(3.5)ᵃ	2(1)ᵃ	27(12.9)ᵇ	7(3.5)ᵃ	43(5.3)	34.287	**<0.001**
Hypertension	12 (6)	13 (6.4)	20 (9.6)	9 (4.5)	54(6.7)	4.523	0.210
Cancer	1(0.5)	0(0)	6(2.9)	0(0)	7(0.9)	9.500	**0.005***
Gastrointestinal diseases	13(6.5)	10(5)	9(4.3)	10(5)	42(5.2)	1.040	0.792
Respiratory diseases	13(6.5)ᵃ	2(1)ᵇ	9(4.3)ᵃᵇ	10(5)ᵃᵇ	34(4.2)	8.089	**0.044**
Mental disorders	5(2.5)	7(3.5)	11(5.3)	4(2)	27(3.3)	3.986	0.263
Musculoskeletal diseases	19(9.5)ᵃ	6(3)ᵇ	8(3.8)ᵃᵇ	13(6.5)ᵃᵇ	46(5.7)	9.722	**0.021**
Endocrine diseases	16(8)ᵃᵇ	22(10.9)ᵇ	15(7.2)ᵃᵇ	7(3.5)ᵃ	60(7.4)	8.150	**0.043**
Do you have vitamin and mineral deficiencies (Iron, B12, vitamin D deficiency, etc.)							
Yes	75(37.3)ᵃ	49(24.3)ᵇ	48(23)ᵇ	37(18.5)ᵇ	209(25.7)	20.644	**<0.001**
No	126(62.7)	153(75.7)	161(77)	163(81.5)	603(74.3)		
Do you use vitamin/mineral supplements? (Iron, B12, vitamin D and omega 3, etc.)							
Yes	75(37.3)ᵃ	66(32.7)ᵃ	34(16.3)ᵇ	52(26)ᵃᵇ	227(28)	25.527	**<0.001**
No	126(62.7)	136(67.3)	175(83.7)	148(74)	585(72)		
Do you have food allergy/intolerance?							
Yes	16(8)ᵃᵇ	33(16.3)ᵇ	15(7.2)ᵃ	28(14)ᵃᵇ	92(11.3)	12.319	**0.006**
No	185(92)	169(83.7)	194(92.8)	172(86)	720(88.7)		
Does anyone in the family have food allergy/intolerance?							
Yes	18(9)ᵃᵇ	30(14.9)ᵃᵇ	15(7.2)ᵇ	31(15.5)ᵃ	94(11.6)	10.425	**0.015**
No	183(91)	172(85.1)	194(92.8)	169(84.5)	718(88.4)		
Do you follow a special diet? (Ketogenic, vegan, ovolactovegetarian, low-carb, low-calorie diet, etc.)							
Yes	43(21.4)ᵃ	19(9.4)ᵇ	11(5.3)ᵇ	23(11.5)ᵇ	96(11.8)	27.437	**<0.001**
No	158(78.6)	183(90.6)	198(94.7)	177(88.5)	716(88.2)		

* Although the overall comparison was significant, no difference was found between countries in the pairwise comparison.

Pearson chi-Square and Fisher-Freeman-Halton tests were used. The Bonferroni test was used for pairwise comparisons. The "a", "b", and "c" superscripts show the results of pairwise comparisons between countries; values with unlike letters were significantly different among groups

Most of the total participants (52.2%) think that their health status was good. The majority of the participants did not have a chronic disease (68%). When evaluating each country separately, the populations of Türkiye, Italy, Lebanese, and Spanish mostly reported having musculoskeletal diseases (9.5%), the other diseases (13.9%), diabetes (%12.9), and the musculoskeletal diseases (6.5%), respectively. About 1/4 of the total participants (25.7%) had any kind of vitamin or mineral deficiency. 11.3% of the total participants reported that they had any food allergy/intolerance, ranging from 16.3% in Italy to 7.2% in Lebanon. There was a food intolerance/allergy in the family of 11.6% of the total participants. Only 11.8% of the total participants followed a special diet, being significantly higher in Türkiye (21.4%) than in the other countries (Table 6).

Table 7: Comparison of nutrition and lifestyle habits by country

	Türkiye (n=201) n (%)	Italy (n=202) n (%)	Lebanon (n=209) n (%)	Spain (n=200) n (%)	Total (n=812) n (%)	χ²	p
Do you smoke?							
Yes	76(37.8)ᵃᵇ	40(19.8)ᶜ	104(49.8)ᵇ	53(26.5)ᵃᶜ	273(33.6)		
No	120(59.7)ᵃᵇ	140(69.3)ᵇᶜ	98(46.9)ᵃ	146(73)ᶜ	504(62.1)	74.257	**<0.001**
Quit	5(2.5)ᵃ	22(10.9)ᵇ	7(3.3)ᵃ	1(0.5)ᵃ	35(4.3)		
Do you drink alcohol?							
Yes	77(38.3)ᵃ	93(46)ᵃ	51(24.4)ᵇ	79(39.5)ᵃ	300(36.9)		
No	121(60.2)ᵃ	109(54)ᵃ	156(74.6)ᵇ	118(59)ᵃ	504(62.1)	25.651	**<0.001**
Quit	3(1.5)	0(0)	2(1)	3(1.5)	8(1)		
How many main meals do you usually eat every day?							
1	10(5)ᵃᵇ	6(3)ᵃᵇ	13(6.2)ᵇ	2(1)ᵃ	31(3.8)		
2	104(51.7)ᵃ	36(17.8)ᵇ	77(36.8)ᶜ	28(14)ᵇ	245(30.2)	174.719	**<0.001**
3	87(43.3)ᵃ	152(75.2)ᵇ	118(56.5)ᶜ	131(65.5)ᵇᶜ	488(60.1)		
4+	0(0)ᵃ	8(4)ᵇ	1(0.5)ᵃᵇ	39(19.5)ᶜ	48(5.9)		
How many snack meals do you usually eat every day?							

	Türkiye	Italy	Lebanon	Spain	Total	χ²	p
0	78(38.8)ab	40(19.8)c	105(50.2)b	67(33.5)a	290(35.7)		
1	70(34.8)a	87(43.1)ab	20(9.6)c	97(48.5)b	274(33.7)	137.785	<0.001
2	42(20.9)a	67(33.2)b	47(22.5)ab	29(14.5)a	185(22.8)		
3	11(5.5)a	7(3.5)a	29(13.9)b	6(3)a	53(6.5)		
4+	0(0)a	1(0.5)ab	8(3.8)b	1(0.5)ab	10(1.2)		
Do you skip the meal?							
Yes	118(58.7)a	68(33.7)b	142(67.9)a	44(22)b	372(45.8)	112.386	<0.001
No	83(41.3)	134(66.3)	67(32.1)	156(78)	440(54.2)		
Which meal do you skip more often?							
None	83(41.3)a	134(66.3)b	58(27.8)c	156(78)b	431(53.1)		
Breakfast	40(19.9)a	23(11.4)a	90(43.1)b	21(10.5)a	174(21.4)	259.246	<0.001
Lunch	72(35.8)a	30(14.9)b	14(6.7)c	4(2)c	120(14.8)		
Dinner	6(3)a	15(7.4)ab	47(22.5)c	19(9.5)b	87(10.7)		
How often do you eat out with your family?							
Always	14(7)a	3(1.5)b	12(5.7)ab	4(2)ab	33(4.1)		
4 to 6 times per week	8(4)a	8(4)a	26(12.4)b	8(4)a	50(6.2)	85.806	<0.001
Less than two times	109(54.2)a	66(32.7)bc	81(38.8)c	48(24)b	304(37.4)		
Only weekends	70(34.8)a	125(61.9)b	90(43.1)a	140(70)b	425(52.3)		
How often do you consume fast food with family?							
Always	0(0)a	1(0.5)ab	9(4.3)b	1(0.5)ab	11(1.4)		
4 to 6 times per week	6(3)a	0(0)a	32(15.3)b	4(2)a	42(5.2)	129.534	<0.001
Less than two times	137(68.2)a	83(41.1)b	89(42.6)b	66(33)b	375(46.2)		
Only weekends	58(28.9)a	118(58.4)b	79(37.8)a	129(64.5)b	384(47.3)		
How often do you cook your own meals at home?							
Always	124(61.7)a	129(63.9)a	179(85.6)b	125(62.5)a	557(68.6)		
4 to 6 times per week	48(23.9)a	66(32.7)a	17(8.1)b	64(32)a	195(24)	66.857	<0.001
Less than two times	16(8)	6(3)	9(4.3)	6(3)	37(4.6)		
Only weekends	13(6.5)a	1(0.5)b	4(1.9)ab	5(2.5)ab	23(2.8)		
How often do you consume ready-made/packaged meals at home/outside?							
Always	3(1.5)a	2(1)a	14(6.7)b	8(4)ab	27(3.3)		
4 to 6 times per week	10(5)a	23(11.4)a	55(26.3)b	16(8)a	104(12.8)	87.760	<0.001
Less than two times	150(74.6)a	117(57.9)b	110(52.6)b	108(54)b	485(59.7)		
Only weekends	38(18.9)ab	60(29.7)bc	30(14.4)a	68(34)c	196(24.1)		

Pearson chi-Square and Fisher-Freeman-Halton tests were used. The Bonferroni test was used for pairwise comparisons. The "a", "b", and "c" superscripts show the results of pairwise comparisons between countries; values with unlike letters were significantly different among groups

Most of the total participants did not smoke (62.1%) while Lebanon had the highest percentage of smokers (49.8%). Most of total participants did not drink alcohol (62.1%). With 24.4% of the population, Lebanon was the country that consumes less alcohol. 60.1% of the total participants consume 3 main meals a day. There were significant differences between countries, with Italy and Spain presenting the highest percentages of people that eats 3 main meals per day (75.2 and 65.5% respectively). 36.2% of the total participants do not have snack meals, with very significant differences among the countries, going from 19.9% in Italy to 52.2% in Lebanon. Regarding Lebanon, we observed a significantly higher ratio of participants reporting to eat 3 snacks per day than the other countries (14.4%). It was shown that 54.2% of the total participants skipped meals, and the most frequent skipped meal was breakfast (21.4%). Lebanon showed a significantly higher ratio of people that consume fast food very frequently (4 to 6 times per week). When the situation of cooking at home was considered, 68.6% of the total participants answered "always". 59.7% of the total participants consumed ready-to eat (packaged) food less than two times per week, while a 12.8% consume this type of food 4 to 6 times per week, with significantly higher percentages in the case of Lebanon (26.3%) in line with the higher consumption of fast food in this country (Table 7).

Table 8: Comparison of variables of digital tool use by country

	Türkiye (n=201) n (%)	Italy (n=202) n (%)	Lebanon (n=209) n (%)	Spain (n=200) n (%)	Total (n=812) n (%)	χ²	p
Which of these digital tools do you have in your home?							

	Türkiye	Italy	Lebanon	Spain	Total	χ²	p
Smartphone	200(99.5)[a]	189(93.6)[b]	201(96.2)[ab]	190(95)[b]	780(96.1)	10.216	**0.017**
Laptop	159(79.1)[a]	70(34.7)[b]	56(26.8)[b]	161(80.5)[a]	446(54.9)	200.639	**<0.001**
Desktop	61(30.3)[a]	153(75.7)[b]	10(4.8)[c]	103(51.5)[d]	327(40.3)	233.796	**<0.001**
Smart TV	149(74.1)[a]	160(79.2)[a]	105(50.2)[b]	163(81.5)[a]	577(71.1)	62.098	**<0.001**
Tablet	116(57.7)[a]	121(59.9)[ab]	32(15.3)[c]	141(70.5)[b]	410(50.5)	146.855	**<0.001**
Which of these digital tools do you personally own?							
Smartphone	199(99)[a]	193(95.5)[ab]	198(94.7)[ab]	184(92)[b]	774(95.3)	11.243	**0.010**
Laptop	110(54.7)[a]	56(27.7)[b]	30(14.4)[c]	142(71)[d]	338(41.6)	165.257	**<0.001**
Desktop	28(13.9)[a]	103(51)[b]	3(1.4)[c]	92(46)[b]	226(27.8)	178.641	**<0.001**
Smart TV	46(22.9)[a]	72(35.6)[b]	38(18.2)[a]	156(78)[c]	312(38.4)	189.764	**<0.001**
Tablet	47(23.4)[a]	68(33.7)[a]	12(5.7)[b]	115(57.5)[c]	242(29.8)	136.572	**<0.001**
Which of these digital tools do you use most often?							
Smartphone	188(93.5)[a]	189(93.6)[a]	191(91.4)[a]	161(80.5)[b]	729(89.8)		
Laptop	5(2.5)[ab]	1(0.5)[b]	4(1.9)[ab]	14(7)[a]	24(3)		
Desktop computer	2(1)	7(3.5)	1(0.5)	6(3)	16(2)	47.790	**<0.001**
Smart TV	5(2.5)	2(1)	6(2.9)	8(4)	21(2.6)		
Tablet	1(0.5)[a]	1(0.5)[a]	1(0.5)[a]	10(5)[b]	13(1.6)		
None	0(0)	2(1)	6(2.9)	1(0.5)	9(1.1)		
What are your purposes for using digital tools?							
Research	125(62.2)[a]	157(77.7)[b]	20(9.6)[c]	136(68)[ab]	438(53.9)	233.023	**<0.001**
Game	34(16.9)[a]	35(17.3)[a]	17(8.1)[b]	101(50.5)[c]	187(23)	119.249	**<0.001**
Social network	140(69.7)[ab]	124(61.4)[b]	135(64.6)[b]	157(78.5)[a]	556(68.5)	15.601	**0.001**
Film music	98(48.8)[a]	92(45.5)[a]	45(21.5)[b]	140(70)[c]	375(46.2)	97.318	**<0.001**
Shopping	100(49.8)[a]	70(34.7)[b]	18(8.6)[c]	143(71.5)[d]	331(40.8)	177.566	**<0.001**
Communication	156(77.6)[a]	135(66.8)[a]	88(42.1)[b]	176(88)[c]	555(68.3)	110.429	**<0.001**
If you have children, do you allow your child to use digital tools?							
Yes	132(92.3)[a]	113(80.1)[b]	111(70.3)[b]	139(92.1)[a]	495(83.5)	37.300	**<0.001**
No	11(7.7)[a]	28(19.9)[b]	47(29.7)[b]	12(7.9)[a]	98(16.5)		
If your answer is "yes". please indicate the digital tool your child uses most frequently							
Smartphone	78(54.5)[ab]	88(62.4)[b]	95(60.1)[b]	67(44.4)[a]	328(55.3)		
Laptop	8(5.6)[ab]	0(0)[c]	1(0.6)[bc]	13(8.6)[a]	22(3.7)		
Desktop computer	8(5.6)[a]	6(4.3)[ab]	0(0)[b]	6(4)[ab]	20(3.4)	103.826	**<0.001**
Smart TV	6(4.2)[abc]	8(5.7)[c]	0(0)[b]	14(9.3)[ac]	28(4.7)		
Tablet	32(22.4)[a]	11(7.8)[b]	14(8.9)[b]	39(25.8)[a]	96(16.2)		
None	11(7.7)[a]	28(19.9)[b]	48(30.4)[b]	12(7.9)[a]	99(16.7)		

Pearson chi-Square and Fisher-Freeman-Halton tests were used. The Bonferroni test was used for pairwise comparisons. The "a", "b", and "c" superscripts show the results of pairwise comparisons between countries; values with unlike letters were significantly different among groups

Most of the participants had a smart phone at home (99.5% in Türkiye, 93.6% in Italy, 96.2% in Lebanon, and 95% in Spain). It was also the smartphone the one with the highest percentage of personally owned devices at home (99% in Türkiye, 95.5% in Italy, 94.7% in Lebanon and 92% in Spain). The most frequently used device was again the smart phone. Participants used digital tools mostly for social media (68.5%), communication (68.3%) and research (53.9%) purposes. When evaluated on the basis of countries, digital tools are mostly used for communication in TürkiyeTürkiye (77.6%), research in Italy (77.7%), Lebanon (64.6%) and Spain (88%) for communication. Interestingly, 83.5% of the participants allowed their children to use digital tools. When comparing the countries, Türkiye and Spain showed a significantly higher percentage of families allowing their children to use digital tools, with rates above 90%. Children using digital tools used smart phones most frequently (55.3%), followed by tablets (16.2%) as given in Table 8.

3.1.3. Family Relations

Table 9: Comparison of family relations variables by country

	Türkiye (n=201) n (%)	Italy (n=202) n (%)	Lebanon (n=209) n (%)	Spain (n=200) n (%)	Total (n=812) n (%)	χ²	p

Do all of your family living in your home eat breakfast together?							
Always	69 (34.3)[a]	42(20.8)[b]	70(33.5)[a]	40(20)[b]	221(27.2)		
4 to 6 times per week	18 (9)	32(15.8)	30(14.4)[a]	30(15)	110(13.5)	22.964	**0.006**
Less than two times	36 (17.9)[a]	40(19.8)	41(19.6)	45(22.5)	162(20)		
Only weekends	78 (38.8)	88(43.6)	68(32.5)	85(42.5)	319(39.3)		
Do all of your family living in your home eat dinner together?							
Always	137(68.2)[a]	123(60.9)[ab]	102(48.8)[b]	119(59.5)[ab]	481(59.2)		
4 to 6 times per week	28(13.9)[ab]	63(31.2)[c]	22(10.5)[b]	48(24)[ac]	161(19.8)	113.261	**<0.001**
Less than two times	29(14.4)[ab]	8(4)[c]	32(15.3)[b]	14(7)[ac]	83(10.2)		
Only weekends	7(3.5)[a]	8(4)[a]	53(25.4)[b]	19(9.5)[a]	87(10.7)		
Does at least one parent accompany your child at dinner?							
Always	127(87.6)[a]	124(87.9)[a]	81(51.3)[b]	121(80.1)[a]	453(76.1)		
4 to 6 times per week	6(4.1)[a]	10(7.1)[a]	9(5.7)[a]	19(12.6)[a]	44(7.4)	120.726	**<0.001**
Less than two times	9(6.2)[a]	3(2.1)[a]	43(27.2)[b]	5(3.3)[a]	60(10.1)		
Only weekends	3(2.1)[a]	4(2.8)[a]	25(15.8)[b]	6(4)[a]	38(6.4)		
Do you watch TV during family meal?							
Always	43(21.4)[a]	90(44.6)[b]	36(17.2)[a]	74(37)[b]	243(29.9)		
4 to 6 times per week	30(14.9)[a]	36(17.8)[a]	22(10.5)[a]	35(17.5)[a]	123(15.1)	141.812	**<0.001**
Less than two times	103(51.2)[a]	52(25.7)[b]	103(49.3)[a]	49(24.5)[b]	307(37.8)		
Only weekends	25(12.4)[a]	24(11.9)[a]	48(23)[b]	42(21)[ab]	139(17.1)		
Do you answer the phone during the family meal?							
Always	35(17.4)[a]	17(8.4)[b]	49(23.4)[a]	14(7)[b]	115(14.2)		
Usually	40(19.9)[a]	21(10.4)[b]	57(27.3)[ac]	63(31.5)[c]	181(22.3)		
Often	15(7.5)[abc]	6(3)[c]	29(13.9)[b]	84(ac)	58(7.1)	108.072	**<0.001**
Sometimes	84(41.8)[ab]	110(54.5)[b]	44(21.1)[c]	80(40)[a]	318(39.2)		
Never	27(13.4)[a]	48(23.8)[b]	30(14.4)[ab]	35(17.5)[ab]	140(17.2)		
Do you allow your child watch TV during family meal?							
Always	19(13.2) [a]	39(28.5)[b]	24(15.2)	36(23.8)[ab]	118(20)		
Usually	17(11.8) [a]	16(11.7)[a]	31(19.6)[ab]	48(31.8)[b]	112(19)		
Often	5(3.5)	19(13.9)[b]	20(12.7)[b]	12(7.9)[ab]	56(9.5)	64.657	**<0.001**
Sometimes	55(38.2)[a]	31(22.6)[b]	48(30.4)[ab]	37(24.5)[ab]	171(29)		
Never	48(33.3)[a]	32(23.4)[ab]	35(22.2)[ab]	18(11.9)[b]	133(22.5)		
Do you allow your child answer the phone during the family meal?							
Always	14(9.7)[a]	15(10.9)[a]	37(23.4)[b]	6(4)[a]	72(12.2)		
Usually	15(10.4)[ab]	9(6.6)[b]	28(17.7)[a]	21(13.9)[ab]	73(12.4)		
Often	9(6.3)[ab]	7(5.1)[ab]	22(13.9)[b]	3(2) [a]	41(6.9)	81.823	**<0.001**
Sometimes	49(34) [a]	35(25.5) [a]	44(27.8) [a]	48(31.8) [a]	176(29.8)		
Never	57(39.6)[a]	71(51.8) [a]	27(17.1)[b]	73(48.3)[a]	228(38.6)		
How often do you invite dinner or lunch at social events? (Frequency of invitation)							
Daily	1 (0.5)[a]	0 (0)[a]	1 (0.5)[a]	20 (10)[b]	22(2.7)		
Weekly	63 (31.3)[a]	81(40.1)[a]	2 (1)[b]	13 (6.5)[c]	159(19.6)		
Monthly	100 (49.8) [ab]	86 (42.6)[bc]	128 (61.2)[a]	64 (32)[c]	378(46.6)	306.477	**<0.001**
Yearly	37 (18.4)[a]	19 (9.4)[a]	78 (37.3)[b]	103 (51.5)[c]	237(29.2)		
Never	0 (0)[a]	16 (7.9)[b]	0 (0)[a]	0 (0) [a]	16(2)		

Pearson chi-Square and Fisher-Freeman-Halton tests were used. The Bonferroni test was used for pairwise comparisons. The "a", "b", and "c" superscripts show the results of pairwise comparisons between countries; values with unlike letters were significantly different among groups

In Table 9, the family relationships of the survey participants were evaluated. Looking at the answers of the participants, those who eat breakfast always with their families are mostly in Türkiye (34.3%) and Lebanon (33.5%). However, the rate of families who always have dinner together was significantly lower in Lebanon (48.8%) than in Türkiye (68.2%), being intermediate in Italy (60.9%) and Spain (59.5%). While in general, more than 50% of the families always dinner together, only 27% of these families have breakfast always together, while most of them (39.3%) have breakfast together only on weekends. In this sense, in the great majority of families (more than 80%) at least one parent accompany their children at dinner; however, Lebanon presented significantly lower values (51%). The Italian and Spanish participants were the ones that more usually watch television during family meals and more usually allow their children to watch television during meals. In general, 30% of the total population always watch television during family meals, while only 20% allow their children to watch television during meals. Most of the surveyed population never or just

sometimes answer the phone during family meals, or allow their children to answer the phone. The rate of families that always answer the phone during meals was significantly higher in Lebanon and and Türkiye. Participants who most allow their child to be on the phone during a meal are the Lebanese (23.4%). Most of the survey participants invite guests to their homes once a month (46.6%). A great ratio of participants in Türkiye (31%) and Italy (40%) invite guests weekly, being significantly higher than in the other countries.

3.2. THE MEDITERRANEAN DIET ADHERENCE SCREENER (MEDAS), THE MEDITERRANEAN DIET QUALITY INDEX (KIDMED) AND MEDITERRANEAN LIFESTYLE (MEDLIFE) QUESTIONNAIRES

Table 10: Comparison of MEDAS scores by country

MEDAS	Türkiye (n=201)	Italy (n=202)	Lebanon (n=209)	Spain (n=200)	Total (n=812)	Test Value	p
Median (min-max)	8 (2 – 12)	8 (2 – 12)	8 (3 – 12)	8 (1 – 14)	8 (1 – 14)	3.263	0.353
Mean ± sd	7.71 ± 2.05	7.71 ± 2.07	7.82 ± 1.98	8.05 ± 2.62	7.82 ± 2.19		

Kruskal Wallis test was used for overall comparison.

In Table 10, the MEDAS scores of the survey participants were evaluated by country and in total. A MEDAS total score below 7 indicate low adherence to MD, between 7 and 9 indicate acceptable adherence, and above 9 indicate high adherence. The differences between the median values of the MEDAS scores by country were found to be significant, statistically ($p < 0.001$). Considering the MEDAS average score of the total population, this was found to be acceptable. This indicates that the countries in which the surveys were conducted showed generally an acceptable adherence to the MD. There were no significant differences among the countries.

Table 10: Comparison of MEDAS characteristics by country

Medas Group	Türkiye (n=201) n (%)	Italy (n=202) n (%)	Lebanon (n=209) n (%)	Spain (n=200) n (%)	Total (n=812) n (%)	Test Value	p
High adherence (**9<**)	38(18.9)	39(19.3)	47(22.5)	56 (28)	180(22.2)		
Acceptable adherence (7-9)	107(53.2)	108(53.5)	108(51.7)	91(45.5)	414(51.0)	6.608	0.359
Low adherence (<7)	56(27.9)	55(27.2)	54(25.8)	53(28)	218(26.8)		

*Pearson Chi-Square test was used

<7 points Low adherence

7-9 points Acceptable adherence

9< points High adherence

Table 11 shows the comparison of MEDAS group by country. The MEDAS scale was divided into 3 groups according to the scores as low, acceptable and high adherence to MD. Considering the total data among the countries, most of the participants (51%) had an acceptable score in terms of the MEDAS scale. In other words, the majority of the countries participating in the survey had an acceptable adherence to the MD diet. Significantly, the rate of adults presenting a low adherence to MD according to MEDAS score was quite high (26.8%). When comparing the MEDAS score values among the countries, the differences among the MEDAS means were found to be non-statistically significant.

Table 12: Comparison of MEDLIFE scores by country

MEDLIFE	Türkiye (n=201)	Italy (n=202)	Lebanon (n=209)	Spain (n=200)	Total (n=812)	Test Value	p
Median (min-max)	16 (6 – 26)[a]	15 (6 – 27)[a]	18 (3 – 27)[b]	16 (4 – 23)[a]	16 (3 – 27)	66.866	**<0.001**
Mean ± sd	15.93 ± 3.39	15.22 ± 3.74	17.95 ± 3.40	15.97 ± 3.63	16.28 ± 3.68		

Kruskal Wallis test was used for overall comparison. The Bonferroni test was used for pairwise comparisons.

Table 12 shows the comparison MEDLIFE scores of the countries. The MEDLIFE scale was used to assess adherence to the MD lifestyle. The mean score of MEDLIFE in our population was 16.28 ± 3.68. Taking into account that this scale goes from 0 to 28 points, this is an intermediate value. There was a significant difference in MEDLIFE scores between countries (p<0.001). Lebanon had significantly higher scores on the MEDLIFE scale compared to other countries (17.95 ± 3.40). This can be interpreted that Lebanon had more adherence to the Mediterranean lifestyle than the other countries.

Table 13: Comparison of MEDLIFE quartiles by country

	Türkiye (n=201) n (%)	Italy (n=202) n (%)	Lebanon (n=209) n (%)	Spain (n=200) n (%)	Total (n=812) n (%)	Test Value	p
Medlife Quartiles							
Quartile 1 (≤14)	71(35.3)[a]	87(43.1)[a]	26(12.4)[b]	72(36)[a]	256(31.5)		
Quartile 2 (15,16)	37(18.4)	41(20.3)	37(17.7)	41(20.5)	156(19.2)	70.535	**<0.001**
Quartile 3 (17-19)	63(31.3)[ab]	48(23.8)[b]	75(35.9)[a]	52(26)[ab]	238(29.3)		
Quartile 4 (≥20)	30(14.9)[a]	26(12.9)[a]	71(34)[b]	35(17.5)[a]	162(20)		

Pearson chi-Square test was used. The "a", "b", and "c" superscripts show the results of pairwise comparisons between countries; values with unlike letters were significantly different among groups

Table 13 shows the comparison of MEDLIFE quartiles by country. The scores of MEDLIFE scale were evaluated by distributing the values into quartiles. The score ranges of quartiles 1, 2, 3, and 4 are ≤14, 15-16, 17-19, and ≥20, respectively. In general, the score range of the total population is spreaded over quartile 1 (31.5%) and 3 (29.3%), indicating that an important ratio of families in Mediterranean countries present a low adherence to MD lifestyle. When comparing the changes among the countries, the Lebanon presented a significant lower percentage in Quartile 1 (12.4%). Regarding Quartile 4, Lebanon presented sinificantly higher ratios than the other countries.

Table 14: Comparison of MEDLIFE characteristics by country

		Türkiye (n=201) n (%)	Italy (n=202) n (%)	Lebanon (n=209) n (%)	Spain (n=200) n (%)	Total (n=812) n (%)	Test Value	p
G23 Do you prefer and consume seasonal and traditional local products, fresh and minimally processed food?	Yes	182 (90.5)	192(95.0)	192(91.9)	177(88.5)	743(91.5)	5.859	0.119
G24 Do you prefer and consume with moderation trying to choose small portion sizes?	Yes	146(72.6)	140(69.3)	164(78.5)	148(74.0)	598(73.6)	4.583	0.205
G31 How many time do you spend having lunch during week days?	≥ 20 minutes	80(39.8)[a]	126(62.4)[b]	159(76.1)[c]	135(67.5)[bc]	500(61.6)	61.876	**<0.001**
G32 Do you usually eat in company (with family, friends, and colleagues)?	Yes	129(64.2)[a]	182(90.1)[b]	180(86.1)[b]	169(84.5)[b]	660(81.3)	53.545	**<0.001**

Pearson chi-Square test was used. The Bonferroni test was used for pairwise comparisons. The "a", "b", and "c" superscripts show the results of pairwise comparisons between countries; values with unlike letters were significantly different among groups

Table 14 shows the analysis of 4 questions (the column numbers of G23-24-31-32 in excel data sheet) not included in the MEDLIFE score calculation, since they were not previously validated. There was a statistically significant difference between countries in G31 and G32 questions (<0.001). 91.5% of the participants answered 'Yes' to the question G23. 73.6% of the participants answered 'Yes' to the question G24. Regarding the question G31, the ratio of Turkish participants that spend more than 20 minutes having lunch was significantly lower than the other countries (39.8%). 81.3% of the participants answered 'Yes' to the question G32. Similarly, the ratio of Turkish participants that usually eat in company was significantly lower than the other countries (64.2%).

Table 15: Comparison of KIDMED scores by country

KIDMED	Türkiye (n=92)	Italy (n=126)	Lebanon (n=149)	Spain (n=133)	Total (n=500)	Test Value	p
Median (min. – max.)	6.25 (-1 – 11)	5.5 (1 – 11)	6 (1 -11)	6 (1.33-12)	6 (-1-12)	5.849	0.119
Mean ± sd	6.29 ± 2.23	5.93 ± 2.44	5.93 ± 2.36	6.46 ± 2.47	6.18 ± 2.38		

A one-way analysis of variance test was used.

In table 15, the average KIDMED scores of the countries are given. In general, all countries showed an average compliance with the KIDMED scale. The overall score average of the countries was 6.18 ± 2.38. Looking at the countries separately, there were no significant differences.

Table 16: Comparison of KIDMED groups by country

	Türkiye (n=201) n (%)	Italy (n=202) n (%)	Lebanon (n=209) n (%)	Spain (n=200) n (%)	Total (n=812) n (%)	Test Value	p
KIDMED Group							
Poor(≤3)	12 (9.7)	16 (15.8)	13 (10.5)	16 (10.5)	57(11.4)		
Average (4-7)	73 (58.9)	61 (60.4)	79 (63.7)	86 (57.0)	299(59.8)	5.070	0.535
Optimal (≥8)	39 (31.6)	24 (23.8)	32 (25.8)	49 (32.5)	144(28.8)		

Pearson chi-Square test was used.

The KIDMED scale assesses the adherence of children aged 2-18 to the MD. In Table 16, KIDMED scores were evaluated by dividing the population into groups according the level of adherence to MD. The participants were grouped as low adherence, average adherence and optimal adherence according to MD adherence scores (≤3 points indicate low adherence to the MD, 4-7 points average adherence, and ≥8 points indicate optimum adherence). Adherence of the children to MD according to KIDMED scale was found to be average in general (59.8%) in our population, while 11.4% of children showed poor adherence to the Mediterranean diet and almost 30% presented an optimal adherence to MD. There were no significant differences between countries.

3.3. MAIN DRIVERS AND BARRIERS TO MEDITERRANEAN DIET ADHERENCE

Table 17: Comparison of drivers and barriers items affecting adherence to the MD by country

Country	Items	1= it's not right for me at all		2		3		4		5= so true for me		Mean	Sd
		n	%	n	%	n	%	n	%	n	%		

SWITCHtoHEALTHY

Country	Category	Code												
Türkiye	Drivers	E6	0	0.0%	0	0.0%	19	9.5%	44	21.9%	138	68.7%	4.59	0.66
		E4	2	1.0%	0	0.0%	25	12.4%	38	18.9%	136	67.7%	4.52	0.79
		E3	3	1.5%	2	1.0%	30	14.9%	46	22.9%	120	59.7%	4.38	0.88
		E5	0	0.0%	3	1.5%	40	19.9%	39	19.4%	119	59.2%	4.36	0.85
		E16	1	0.5%	3	1.5%	35	17.4%	49	24.4%	113	56.2%	4.34	0.85
		E2	3	1.5%	4	2.0%	36	17.9%	39	19.4%	119	59.2%	4.33	0.94
		E8	4	2.0%	3	1.5%	37	18.4%	38	18.9%	119	59.2%	4.32	0.96
		E9	5	2.5%	5	2.5%	34	16.9%	38	18.9%	119	59.2%	4.30	1.00
		E1	4	2.0%	4	2.0%	35	17.4%	44	21.9%	114	56.7%	4.29	0.96
		E13	4	2.0%	1	0.5%	62	30.8%	39	19.4%	95	47.3%	4.09	0.99
		E7	6	3.0%	8	4.0%	55	27.4%	40	19.9%	92	45.8%	4.01	1.08
		E11	9	4.5%	18	9.0%	54	26.9%	35	17.4%	85	42.3%	3.84	1.20
		E15	0	0.0%	12	6.0%	86	42.8%	35	17.4%	68	33.8%	3.79	0.98
		E14	11	5.5%	8	4.0%	82	40.8%	31	15.4%	69	34.3%	3.69	1.15
		E10	16	8.0%	10	5.0%	79	39.3%	37	18.4%	59	29.4%	3.56	1.19
		E12	30	14.9%	27	13.4%	55	27.4%	29	14.4%	60	29.9%	3.31	1.41
	Barriers	E25	63	31.3%	26	12.9%	48	23.9%	33	16.4%	31	15.4%	2.72	1.45
		E18	70	34.8%	28	13.9%	56	27.9%	12	6.0%	35	17.4%	2.57	1.45
		E27	71	35.3%	27	13.4%	46	22.9%	33	16.4%	24	11.9%	2.56	1.42
		E17	73	36.3%	30	14.9%	63	31.3%	18	9.0%	17	8.5%	2.38	1.29
		E20	91	45.3%	23	11.4%	46	22.9%	18	9.0%	23	11.4%	2.30	1.41
		E24	90	44.8%	21	10.4%	54	26.9%	15	7.5%	21	10.4%	2.28	1.37
		E21	87	43.3%	28	13.9%	54	26.9%	17	8.5%	15	7.5%	2.23	1.29
		E26	99	49.3%	29	14.4%	36	17.9%	20	10.0%	17	8.5%	2.14	1.35
		E22	110	54.7%	23	11.4%	39	19.4%	16	8.0%	13	6.5%	2.00	1.28
		E23	105	52.2%	35	17.4%	32	15.9%	14	7.0%	15	7.5%	2.00	1.28
		E19	121	60.2%	30	14.9%	34	16.9%	9	4.5%	7	3.5%	1.76	1.10
Italy	Drivers	E5	2	1.0%	3	1.5%	19	9.4%	46	22.8%	132	65.3%	4.50	0.81
		E4	1	0.5%	2	1.0%	16	7.9%	61	30.2%	122	60.4%	4.49	0.73
		E6	1	0.5%	3	1.5%	24	11.9%	60	29.7%	114	56.4%	4.40	0.79
		E1	3	1.5%	3	1.5%	26	12.9%	55	27.2%	115	56.9%	4.37	0.87
		E3	4	2.0%	4	2.0%	27	13.4%	58	28.7%	109	54.0%	4.31	0.92
		E7	2	1.0%	6	3.0%	26	12.9%	67	33.2%	101	50.0%	4.28	0.87
		E9	1	0.5%	11	5.4%	23	11.4%	63	31.2%	104	51.5%	4.28	0.90
		E2	5	2.5%	7	3.5%	27	13.4%	63	31.2%	100	49.5%	4.22	0.97
		E8	4	2.0%	8	4.0%	31	15.3%	66	32.7%	93	46.0%	4.17	0.96
		E16	4	2.0%	10	5.0%	37	18.3%	66	32.7%	85	42.1%	4.08	0.99
		E10	6	3.0%	20	9.9%	41	20.3%	56	27.7%	79	39.1%	3.90	1.12
		E13	4	2.0%	10	5.0%	58	28.7%	64	31.7%	66	32.7%	3.88	0.99
		E14	5	2.5%	11	5.4%	61	30.2%	66	32.7%	59	29.2%	3.81	1.00
		E11	10	5.0%	15	7.4%	62	30.7%	61	30.2%	54	26.7%	3.66	1.10
		E15	6	3.0%	13	6.4%	84	41.6%	55	27.2%	44	21.8%	3.58	1.00
		E12	21	10.4%	33	16.3%	71	35.1%	47	23.3%	30	14.9%	3.16	1.18
	Barriers	E19	47	23.3%	32	15.8%	46	22.8%	28	13.9%	49	24.3%	3.00	1.49
		E25	47	23.3%	42	20.8%	69	34.2%	31	15.3%	13	6.4%	2.61	1.18
		E20	52	25.7%	49	24.3%	53	26.2%	30	14.9%	18	8.9%	2.57	1.26
		E17	42	20.8%	62	30.7%	56	27.7%	27	13.4%	15	7.4%	2.56	1.18
		E18	76	37.6%	40	19.8%	35	17.3%	21	10.4%	30	14.9%	2.45	1.45
		E27	70	34.7%	54	26.7%	51	25.2%	17	8.4%	10	5.0%	2.22	1.16
		E24	87	43.1%	50	24.8%	37	18.3%	18	8.9%	10	5.0%	2.08	1.19
		E26	86	42.6%	51	25.2%	45	22.3%	11	5.4%	9	4.5%	2.04	1.13
		E21	92	45.5%	53	26.2%	32	15.8%	15	7.4%	10	5.0%	2.00	1.17
		E23	108	53.5%	37	18.3%	35	17.3%	14	6.9%	8	4.0%	1.90	1.16
		E22	143	70.8%	31	15.3%	13	6.4%	8	4.0%	7	3.5%	1.54	1.02
Lebanon	Drivers	E4	3	1.4%	9	4.3%	26	12.4%	66	31.6%	105	50.2%	4.25	0.93
		E8	3	1.4%	8	3.8%	23	11.0%	81	38.8%	94	45.0%	4.22	0.89
		E9	12	5.7%	8	3.8%	27	12.9%	55	26.3%	107	51.2%	4.13	1.14
		E5	4	1.9%	16	7.7%	26	12.4%	82	39.2%	81	38.8%	4.05	1.00
		E6	5	2.4%	8	3.8%	30	14.4%	95	45.5%	71	34.0%	4.05	0.92
		E3	9	4.3%	11	5.3%	26	12.4%	87	41.6%	76	36.4%	4.00	1.04
		E1	8	3.8%	11	5.3%	41	19.6%	82	39.2%	67	32.1%	3.90	1.03
		E7	4	1.9%	16	7.7%	42	20.1%	83	39.7%	64	30.6%	3.89	0.99

Country	Type	Code	n	%	n	%	n	%	n	%	n	%	Mean	SD
		E2	6	2.9%	14	6.7%	33	15.9%	99	47.6%	56	26.9%	3.89	0.97
		E16	9	4.3%	21	10.0%	50	23.9%	52	24.9%	77	36.8%	3.80	1.17
		E13	15	7.2%	23	11.0%	34	16.3%	73	34.9%	64	30.6%	3.71	1.22
		E11	7	3.3%	23	11.0%	53	25.4%	71	34.0%	55	26.3%	3.69	1.08
		E15	6	2.9%	28	13.4%	62	29.7%	69	33.0%	44	21.1%	3.56	1.05
		E14	20	9.6%	26	12.4%	40	19.1%	64	30.6%	59	28.2%	3.56	1.28
		E12	17	8.1%	40	19.1%	52	24.9%	54	25.8%	46	22.0%	3.34	1.24
		E10	28	13.4%	34	16.3%	35	16.7%	64	30.6%	48	23.0%	3.33	1.35
	Barriers	E25	38	18.2%	44	21.1%	50	23.9%	53	25.4%	24	11.5%	2.91	1.28
		E27	31	14.8%	65	31.1%	64	30.6%	34	16.3%	15	7.2%	2.70	1.13
		E26	64	30.6%	32	15.3%	56	26.8%	47	22.5%	10	4.8%	2.56	1.27
		E20	58	27.8%	59	28.2%	44	21.1%	37	17.7%	11	5.3%	2.44	1.22
		E23	67	32.2%	41	19.7%	51	24.5%	44	21.2%	5	2.4%	2.42	1.21
		E18	67	32.1%	61	29.2%	42	20.1%	29	13.9%	10	4.8%	2.30	1.19
		E21	71	34.0%	57	27.3%	40	19.1%	31	14.8%	10	4.8%	2.29	1.22
		E19	79	37.8%	54	25.8%	38	18.2%	28	13.4%	10	4.8%	2.22	1.22
		E22	78	37.3%	57	27.3%	46	22.0%	22	10.5%	6	2.9%	2.14	1.12
		E24	86	41.1%	55	26.3%	35	16.7%	27	12.9%	6	2.9%	2.10	1.16
		E17	80	38.3%	61	29.2%	44	21.1%	21	10.0%	3	1.4%	2.07	1.06
Spain	Drivers	E4	1	0.5%	6	3.0%	37	18.5%	58	29.0%	98	49.0%	4.23	0.89
		E9	2	1.0%	3	1.5%	39	19.5%	69	34.5%	87	43.5%	4.18	0.87
		E8	3	1.5%	5	2.5%	38	19.0%	67	33.5%	87	43.5%	4.15	0.92
		E5	3	1.5%	3	1.5%	41	20.5%	73	36.5%	80	40.0%	4.12	0.89
		E3	2	1.0%	8	4.0%	40	20.0%	65	32.5%	85	42.5%	4.12	0.93
		E6	2	1.0%	4	2.0%	47	23.5%	63	31.5%	84	42.0%	4.12	0.90
		E2	9	4.5%	6	3.0%	43	21.5%	57	28.5%	85	42.5%	4.02	1.08
		E1	9	4.5%	4	2.0%	50	25.0%	50	25.0%	87	43.5%	4.01	1.08
		E7	4	2.0%	7	3.5%	58	29.0%	50	25.0%	81	40.5%	3.99	1.01
		E16	3	1.5%	13	6.5%	53	26.5%	59	29.5%	72	36.0%	3.92	1.01
		E11	8	4.0%	12	6.0%	68	34.0%	60	30.0%	52	26.0%	3.68	1.05
		E13	5	2.5%	15	7.5%	75	37.5%	53	26.5%	52	26.0%	3.66	1.02
		E10	13	6.5%	14	7.0%	66	33.0%	51	25.5%	56	28.0%	3.62	1.15
		E14	9	4.5%	19	9.5%	85	42.5%	42	21.0%	45	22.5%	3.48	1.08
		E15	9	4.5%	21	10.5%	87	43.5%	47	23.5%	36	18.0%	3.40	1.04
		E12	26	13.0%	34	17.0%	81	40.5%	36	18.0%	23	11.5%	2.98	1.16
	Barriers	E25	27	13.5%	28	14.0%	73	36.5%	53	26.5%	19	9.5%	3.05	1.15
		E20	56	28.0%	40	20.0%	60	30.0%	33	16.5%	11	5.5%	2.52	1.22
		E27	54	27.0%	34	17.0%	83	41.5%	19	9.5%	10	5.0%	2.49	1.13
		E26	64	32.0%	46	23.0%	58	29.0%	26	13.0%	6	3.0%	2.32	1.14
		E23	68	34.0%	43	21.5%	60	30.0%	20	10.0%	9	4.5%	2.30	1.17
		E18	78	39.0%	38	19.0%	58	29.0%	16	8.0%	10	5.0%	2.21	1.19
		E17	76	38.0%	35	17.5%	69	34.5%	14	7.0%	6	3.0%	2.20	1.11
		E21	75	37.5%	42	21.0%	59	29.5%	17	8.5%	7	3.5%	2.20	1.14
		E19	84	42.0%	38	19.0%	54	27.0%	15	7.5%	9	4.5%	2.14	1.18
		E24	79	39.5%	47	23.5%	52	26.0%	15	7.5%	7	3.5%	2.12	1.12
		E22	99	49.5%	42	21.0%	40	20.0%	14	7.0%	5	2.5%	1.92	1.10
Total	Drivers	E4	7	0.9%	17	2.1%	104	12.8%	223	27.5%	461	56.8%	4.37	0.85
		E6	8	1.0%	15	1.8%	120	14.8%	262	32.3%	407	50.1%	4.29	0.85
		E5	9	1.1%	25	3.1%	126	15.5%	240	29.6%	412	50.7%	4.26	0.91
		E9	20	2.5%	27	3.3%	123	15.1%	225	27.7%	417	51.4%	4.22	0.99
		E8	14	1.7%	24	3.0%	129	15.9%	252	31.0%	393	48.4%	4.21	0.93
		E3	18	2.2%	25	3.1%	123	15.1%	256	31.5%	390	48.0%	4.20	0.96
		E1	24	3.0%	22	2.7%	152	18.7%	231	28.4%	383	47.2%	4.14	1.01
		E2	23	2.8%	31	3.8%	139	17.1%	258	31.8%	360	44.4%	4.11	1.01
		E7	16	2.0%	37	4.6%	181	22.3%	240	29.6%	338	41.6%	4.04	1.00
		E16	17	2.1%	47	5.8%	175	21.6%	226	27.8%	347	42.7%	4.03	1.03
		E13	28	3.4%	49	6.0%	229	28.2%	229	28.2%	277	34.1%	3.83	1.07
		E11	34	4.2%	68	8.4%	237	29.2%	227	28.0%	246	30.3%	3.72	1.11
		E14	45	5.5%	64	7.9%	268	33.0%	203	25.0%	232	28.6%	3.63	1.14
		E10	63	7.8%	78	9.6%	221	27.2%	208	25.6%	242	29.8%	3.60	1.22
		E15	21	2.6%	74	9.1%	319	39.3%	206	25.4%	192	23.6%	3.58	1.03
		E12	94	11.6%	134	16.5%	259	31.9%	166	20.4%	159	19.6%	3.20	1.26

Barriers	E25	175	21.6%	140	17.2%	240	29.6%	170	20.9%	87	10.7%	2.82	1.28
	E27	226	27.8%	180	22.2%	244	30.0%	103	12.7%	59	7.3%	2.49	1.22
	E20	257	31.7%	171	21.1%	203	25.0%	118	14.5%	63	7.8%	2.46	1.28
	E18	291	35.8%	167	20.6%	191	23.5%	78	9.6%	85	10.5%	2.38	1.33
	E17	271	33.4%	188	23.2%	232	28.6%	80	9.9%	41	5.0%	2.30	1.17
	E19	331	40.8%	154	19.0%	172	21.2%	80	9.9%	75	9.2%	2.28	1.33
	E26	313	38.5%	158	19.5%	195	24.0%	104	12.8%	42	5.2%	2.27	1.24
	E21	325	40.0%	180	22.2%	185	22.8%	80	9.9%	42	5.2%	2.18	1.21
	E23	348	42.9%	156	19.2%	178	21.9%	92	11.3%	37	4.6%	2.15	1.22
	E24	342	42.1%	173	21.3%	178	21.9%	75	9.2%	44	5.4%	2.15	1.22
	E22	430	53.0%	153	18.8%	138	17.0%	60	7.4%	31	3.8%	1.90	1.15

Descriptive statistics were given as frequency, percentage, mean and standard deviation. E codes indicate the factors (items) belonging to the drivers and barriers affecting adherence to the MD diet. The drivers and barriers corresponding to each code are given at the end of the report and in Annex 1.

Comparison of drivers and barriers' factors affecting adherence to the MD is given in Table 17. The drivers and barriers are ordered from the highest scored to the lowest scored. Considering the general survey responses of the participants among the countries, the driving factors to MD adherence that obtained a highest scoring in our population are (by order of punctuation): the MD diet contains healthier and more nutritious foods (1), contains more healthy fats (2), encourages higher consumption of fruits and vegetables and lower red meat consumption (3), contains less processed foods (4), and contains high amounts of homemade foods (5). These factors bring people closer to the MD diet.

On the other hand, the barrier factors that can limit adherence to the MD diet according to the results obtained in our survey are the following: the MD diet includes high-priced foods (1), there are limited options in restaurants (2), it is difficult to prepare meals suitable for the MD diet (3), the diet is not suitable for vegans (4) and MD contains allergenic foods (5). However, a very few percentage of this population rated this barriers with a high score. In fact, the main drivers described here obtained a score around 4 points while the main barriers scored around 2 points, on a 5-point scale. Thus, drivers seems to have a higher weight than barriers towards adherence to MD in this population, at least for the ones assessed in this survey.

Looking at the countries separately, it was found that the most important factor supporting the MD diet in Türkiye was that MD diet contains healthy fats. In Italy, the most important driver for the MD was that MD is high in fruit and vegetables and low in red meat. In Lebanon and Spain, the most important driver was that the MD diet includes healthier and more nutritious foods.

Considering the factors that prevent adherence to the MD in Turkiye, Lebanon and Spain, the factor with the highest mean value was determined to be that the MD diet includes high-priced foods. The most important obstacle in Italy is the lack of food variety in the MD diet.

Table 18: Comparison of drivers and barriers affecting adherence to the MD by country, grouped by category

	Türkiye Median (min. – max.) Mean ± sd	Italy Median (min. – max.) Mean ± sd	Lebanon Median (min. – max.) Mean ± sd	Spain Median (min. – max.) Mean ± sd	Total Median (min. – max.) Mean ± sd	Test Sta.	p
Drivers-Health	4.67 (1-5)[a]	4.67 (1-5)[a]	4 (1-5)[b]	4 (1-5)[b]	4.33 (1-5)	38.355	**<0.001**
	4.33±0.82	4.3±0.8	3.93±0.84	4.05±0.93	4.15±0.87		
Drivers-Diet quality	4.67 (2.33-5)[a]	4.67 (1-5)[a]	4.33 (1-5)[b]	4.33 (1-5)[b]	4.33 (1-5)	46.809	**<0.001**
	4.49±0.61	4.46±0.64	4.12±0.77	4.16±0.78	4.31±0.72		
Drivers-Applicability	4 (1-5)[ab]	4.5 (1-5)[a]	4 (1-5)[b]	4 (1-5)[b]	4 (1-5)	17.970	**<0.001**
	4.01±1.08	4.28±0.87	3.89±0.99	3.99±1.01	4.04±1		
Drivers-Lifestyle	4.33 (2-5)[ab]	4.33 (1-5)[a]	4 (1-5)[b]	4 (1-5)[ab]	4 (1-5)	9.807	**0.020**

	4.06±0.77	4.12±0.8	3.9±0.79	3.98±0.8	4.01±0.79		
Drivers-Affordability	3.5 (1-5)	3.5 (1-5)	3.5 (1-5)	3.5 (1-5)	3.5 (1-5)	6.393	0.094
	3.57±1.13	3.41±1.03	3.52±0.96	3.33±0.97	3.46±1.02		
Drivers-Environmental factors	4 (2-5)[a]	3.75 (1-5)[ab]	3.75 (1-5)[b]	3.5 (1.25-5)[b]	3.75 (1-5)	18.997	**<0.001**
	3.98±0.77	3.84±0.84	3.66±0.98	3.61±0.91	3.77±0.89		
Barriers-Health	2.14 (1-4.43)	2.29 (1-5)	2.29 (1-4.86)	2.14 (1-5)	2.14 (1-5)	2.589	0.460
	2.18±0.78	2.29±0.78	2.27±0.79	2.21±0.87	2.24±0.8		
Barriers Lifestyle	2 (1-5)	2 (1-5)	2 (1-5)	2 (1-5)	2 (1-5)	1.504	0.681
	2.28±1.37	2.08±1.19	2.1±1.16	2.12±1.12	2.15±1.22		
Barriers Affordability	2.67 (1-5)[a]	2.33 (1-5)[a]	2.67 (1-4.67)[b]	2.83 (1-5)[ab]	2.67 (1-5)	27.006	**<0.001**
	2.47±1.11	2.29±0.96	2.72±0.79	2.62±0.96	2.53±0.97		

Kruskal Wallis test was used for overall comparison. The Bonferroni test was used for pairwise comparisons. The "a", "b", and "c" superscripts show the results of pairwise comparisons between countries; values with unlike letters were significantly different among groups

The mean scores of the barriers and drivers affecting adherence to the MD were compared according to the main evaluation criteria and on the basis of countries, and are presented in Table 18. Among the barriers, we only found significant differences between countries in those related to affordability. Specifically, Lebanon participants rated these barriers with a significantly higher score than participants in Italy and Türkiye.

Regarding drivers, health and the diet quality drivers obtained significantly higher scores in Italy and Türkiye than in the other countries, while applicability drivers were also scored higher in Italy than in Lebanon and Spain. Similarly, lifestyle drivers were scored higher in Italy than in Lebanon, with intermediate values in Spain and Türkiye. Drivers related to environmental factors were rated with higher values in Türkiye than in Lebanon and Spain.

In general, the drivers that were rated with the highest scores were those related to diet quality and health, while barriers related to affordability were the ones that obtained the highest scores.

Table 19: Comparison of the relationship between age, height, weight and BMI and the drivers and barriers affecting adherence to the MD

		Age		Weight		BMI	
		r	p	r	p	r	p
Türkiye	Drivers-Health	0.045	0.522	-0.101	0.153	-0.079	0.264
	Drivers-Diet quality	0.054	0.443	-0.067	0.344	-0.005	0.940
	Drivers-Applicability	0.041	0.568	**-0.220**	**0.002**	**-0.165**	**0.019**
	Drivers-Lifestyle	0.071	0.314	-0.030	0.667	-0.010	0.891
	Drivers-Affordability	0.117	0.099	0.010	0.885	0.083	0.239
	Drivers-Environmental factors	-0.087	0.221	-0.091	0.198	-0.052	0.462
	Barriers-Health	0.009	0.901	0.122	0.084	0.041	0.568
	Barriers Lifestyle	-0.047	0.505	0.053	0.456	-0.001	0.985
	Barriers Affordability	**0.148**	**0.036**	0.027	0.707	-0.065	0.358
Italy	Drivers-Health	0.113	0.109	-0.089	0.208	-0.072	0.311
	Drivers-Diet quality	**0.205**	**0.003**	-0.033	0.642	-0.052	0.465
	Drivers- Applicability	**0.197**	**0.005**	-0.078	0.268	-0.075	0.286
	Drivers-Lifestyle	0.077	0.274	-0.047	0.506	-0.085	0.227
	Drivers-Affordability	**0.202**	**0.004**	0.040	0.569	0.060	0.398
	Drivers-Environmental factors	**0.178**	**0.011**	0.011	0.872	0.028	0.690
	Barriers-Health	0.005	0.944	0.138	0.051	0.124	0.079

Country							
	Barriers Lifestyle	-0.073	0.299	**0.186**	**0.008**	**0.173**	**0.014**
	Barriers Affordability	**-0.174**	**0.013**	0.086	0.221	0.096	0.175
Lebanon	Drivers-Health	0.113	0.105	0.010	0.886	0.026	0.714
	Drivers-Diet quality	0.039	0.576	-0.068	0.330	-0.084	0.227
	Drivers-Applicability	0.044	0.529	-0.107	0.122	-0.060	0.388
	Drivers-Lifestyle	**0.147**	**0.033**	-0.050	0.470	-0.004	0.952
	Drivers-Affordability	0.080	0.250	0.020	0.776	-0.021	0.764
	Drivers-Environmental factors	**0.205**	**0.003**	-0.062	0.374	-0.129	0.064
	Barriers-Health	**-0.235**	**0.001**	0.041	0.559	0.048	0.495
	Barriers Lifestyle	**-0.221**	**0.001**	0.042	0.548	0.062	0.374
	Barriers Affordability	**-0.193**	**0.005**	0.024	0.730	0.111	0.109
Spain	Drivers-Health	**0.188**	**0.008**	-0.086	0.224	-0.085	0.233
	Drivers-Diet quality	0.085	0.231	0.007	0.916	0.014	0.848
	Drivers- Applicability	0.030	0.678	-0.006	0.935	-0.016	0.822
	Drivers-Lifestyle	0.060	0.401	-0.006	0.933	0.031	0.667
	Drivers-Affordability	-0.039	0.584	0.020	0.780	0.027	0.700
	Drivers-Environmental factors	-0.002	0.973	-0.012	0.867	0.010	0.888
	Barriers-Health	-0.065	0.361	0.023	0.741	0.025	0.728
	Barriers Lifestyle	-0.042	0.557	0.067	0.344	0.074	0.297
	Barriers Affordability	-0.071	0.317	0.053	0.455	0.036	0.617
Total	Drivers-Health	0.066	0.059	**-0.115**	**0.001**	**-0.099**	**0.005**
	Drivers-Diet quality	0.047	0.177	**-0.090**	**0.010**	**-0.071**	**0.043**
	Drivers- Applicability	**0.070**	**0.045**	**-0.134**	**0.000**	**-0.110**	**0.002**
	Drivers-Lifestyle	**0.077**	**0.028**	-0.057	0.105	-0.035	0.326
	Drivers-Affordability	**0.080**	**0.022**	0.023	0.518	0.052	0.140
	Drivers-Environmental factors	0.058	0.099	-0.058	0.101	-0.046	0.188
	Barriers-Health	**-0.084**	**0.017**	.080	0.023	0.056	0.109
	Barriers Lifestyle	**-0.119**	**0.001**	0.083	0.018	0.075	0.032
	Barriers Affordability	-0.061	0.084	**0.095**	**0.007**	**0.081**	**0.021**

r: Spearman's rho correlation coefficient

The relationship among age, weight and BMI and drivers and barriers, grouped by category, affecting adherence to the MD is shown in Table 19. In general, the age variable showed a significant positive correlation with the scores given to applicability, lifestyle, and affordability drivers, while age showed a negative correlation with the scores given to health and lifestyle barriers. It can be said that younger individuals rate drivers to MD with lower scores, while they rate barriers with higher scores, so apparently it seems more difficult for them to adhere to MD.

When weight and BMI factors were considered, they were found to show a negative correlation with drivers related to health, diet quality and applicability, while they exhibited a positive correlation with the lifestyle and the affordability barriers. Thus, it seems that people with higher body weight and BMI rate higher the barriers and lower the drivers to MD than those with lower body weight and BMI, so they can find more difficulties to adhere to MD and mantain a healthy body weight.

Table 20: Comparison of the relationship between MEDAS and MEDLIFE scores and the drivers and barriers affecting adherence to the MD

Country		MEDAS score		MEDLIFE score	
		r	p	r	p
Türkiye	Drivers-Health	**0.175**	**0.013**	0.095	0.178
	Drivers-Diet quality	**0.185**	**0.009**	0.063	0.377
	Drivers- Applicability	**0.253**	**<0.001**	**0.153**	**0.030**
	Drivers-Lifestyle	0.063	0.374	0.104	0.141
	Drivers-Affordability	0.066	0.348	**0.141**	**0.046**
	Drivers-Environmental factors	0.093	0.189	**0.158**	**0.025**

		r	p	r	p
	Barriers-Health	-0.136	0.055	-0.135	0.055
	Barriers Lifestyle	-0.036	0.608	0.060	0.397
	Barriers Affordability	-0.035	0.626	**-0.181**	**0.010**
	Drivers-Health	**0.226**	**0.001**	**0.197**	**0.005**
	Drivers-Diet quality	**0.244**	**<0.001**	**0.326**	**<0.001**
	Drivers-Applicability	**0.232**	**0.001**	**0.206**	**0.003**
	Drivers-Lifestyle	**0.223**	**0.001**	**0.230**	**0.001**
Italy	Drivers-Affordability	0.079	0.262	**0.179**	**0.011**
	Drivers-Environmental factors	**0.189**	**0.007**	**0.297**	**<0.001**
	Barriers-Health	**-0.150**	**0.033**	**-0.211**	**0.003**
	Barriers Lifestyle	**-0.173**	**0.014**	**-0.280**	**<0.001**
	Barriers Affordability	**-0.204**	**0.004**	**-0.230**	**0.001**
	Drivers-Health	0.083	0.235	-0.088	0.206
	Drivers-Diet quality	0.036	0.605	-0.087	0.212
	Drivers- Applicability	0.031	0.658	-0.082	0.240
	Drivers-Lifestyle	0.025	0.723	**-0.152**	**0.028**
Lebanon	Drivers-Affordability	0.044	0.529	0.059	0.398
	Drivers-Environmental factors	0.006	0.930	**-0.205**	**0.003**
	Barriers-Health	0.087	0.212	0.116	0.094
	Barriers Lifestyle	-0.037	0.597	0.100	0.151
	Barriers Affordability	0.055	0.429	0.095	0.171
	Drivers-Health	**0.298**	**<0.001**	**0.238**	**0.001**
	Drivers-Diet quality	**0.261**	**<0.001**	**0.230**	**0.001**
	Drivers- Applicability	**0.225**	**0.001**	**0.226**	**0.001**
	Drivers-Lifestyle	**0.247**	**<0.001**	**0.288**	**<0.001**
Spain	Drivers-Affordability	0.106	0.136	0.067	0.345
	Drivers-Environmental factors	**0.169**	**0.016**	**0.259**	**<0.001**
	Barriers-Health	**-0.236**	**0.001**	**-0.196**	**0.005**
	Barriers Lifestyle	**-0.290**	**<0.001**	**-0.202**	**0.004**
	Barriers Affordability	**-0.229**	**0.001**	-0.096	0.177
	Drivers-Health	**0.186**	**<0.001**	0.050	0.154
	Drivers-Diet quality	**0.169**	**<0.001**	0.060	0.086
	Drivers- Applicability	**0.175**	**<0.001**	0.075	**0.032**
	Drivers-Lifestyle	**0.136**	**<0.001**	0.087	**0.013**
Total	Drivers-Affordability	**0.07**	**0.032**	0.120	0.001
	Drivers-Environmental factors	**0.102**	**0.003**	0.090	**0.010**
	Barriers-Health	**-0.112**	**0.001**	-0.086	**0.014**
	Barriers Lifestyle	**-0.134**	**<0.001**	-0.075	**0.031**
	Barriers Affordability	**-0.096**	**0.006**	-0.051	0.146

* r: Spearman's rho correlation coefficient

The relationship between MEDAS and MEDLIFE scores and the drivers and barriers affecting adherence to the MD is given in Table 20. When all the countries were analyzed together, it was observed that, interestingly, MEDAS was positively associated with all drivers (health, diet quality, applicability, lifestyle, affordability, and environmental factors), and negatively associated with all barriers. This indicates that a higher identification of drivers and a lower identification of barriers results in a higher adherence to MD in adults. In the case of MEDLIFE, it followed the similar pattern although the strenght of the correlations was lower.

Table 21: Comparison of the relationship between KIDMED, MEDAS, and MEDLIFE indexes and the drivers and barriers affecting adherence to the MD

Country			KIDMED		MEDAS		MEDLIFE	
			r	p	r	p	r	p
	Drivers	E1	-0.027	0.764	**0.175**	**0.013**	0.074	0.293
Türkiye		E2	0.002	0.979	**0.154**	**0.029**	0.122	0.084
		E3	-0.054	0.553	**0.156**	**0.027**	0.094	0.187

		E4	0.044	0.631	**0.179**	**0.011**	0.034	0.634
		E5	0.006	0.947	0.114	0.108	0.042	0.554
		E6	0.148	0.101	**0.181**	**0.010**	0.113	0.111
		E7	**0.222**	**0.013**	**0.253**	**<0.001**	**0.153**	**0.030**
		E8	**0.242**	**0.007**	**0.169**	**0.017**	0.123	0.083
		E9	0.138	0.126	0.020	0.776	-0.019	0.793
		E10	0.059	0.518	-0.010	0.882	0.102	0.150
		E11	0.056	0.535	0.102	0.150	**0.196**	**0.005**
		E12	0.078	0.388	0.030	0.676	0.066	0.353
		E13	0.138	0.127	0.109	0.122	0.109	0.122
		E14	0.150	0.097	0.112	0.114	**0.177**	**0.012**
		E15	0.061	0.499	0.087	0.220	**0.199**	**0.005**
		E16	-0.002	0.980	0.033	0.638	0.047	0.510
	Barriers	E17	-0.109	0.230	0.080	0.260	0.023	0.747
		E18	-0.144	0.110	-0.012	0.861	-0.033	0.642
		E19	-0.161	0.074	**-0.207**	**0.003**	-0.133	0.060
		E20	-0.131	0.145	-0.078	0.269	**-0.155**	**0.028**
		E21	**-0.191**	**0.034**	**-0.174**	**0.014**	-0.099	0.162
		E22	**-0.222**	**0.013**	**-0.203**	**0.004**	-0.064	0.363
		E23	-0.171	0.058	**-0.178**	**0.011**	**-0.163**	**0.021**
		E24	-0.111	0.219	-0.036	0.608	0.060	0.397
		E25	-0.106	0.243	0.074	0.295	-0.100	0.160
		E26	-0.157	0.081	**-0.149**	**0.035**	**-0.163**	**0.021**
		E27	**-0.214**	**0.017**	-0.041	0.566	**-0.172**	**0.015**
	Drivers	E1	**0.374**	**<0.001**	**0.213**	**0.002**	**0.174**	**0.013**
		E2	**0.229**	**0.021**	**0.193**	**0.006**	**0.170**	**0.016**
		E3	**0.332**	**0.001**	**0.171**	**0.015**	**0.167**	**0.017**
		E4	**0.331**	**0.001**	**0.214**	**0.002**	**0.218**	**0.002**
		E5	**0.316**	**0.001**	**0.192**	**0.006**	**0.258**	**<0.001**
		E6	**0.338**	**0.001**	**0.175**	**0.013**	**0.282**	**<0.001**
		E7	**0.209**	**0.036**	**0.232**	**0.001**	**0.206**	**0.003**
		E8	**0.213**	**0.033**	**0.147**	**0.037**	**0.169**	**0.016**
		E9	**0.249**	**0.012**	**0.199**	**0.005**	0.114	0.106
		E10	0.188	0.060	**0.173**	**0.014**	**0.256**	**<0.001**
		E11	0.029	0.775	0.084	0.233	**0.158**	**0.025**
		E12	0.099	0.323	0.051	0.471	**0.153**	**0.030**
		E13	**0.359**	**<0.001**	**0.192**	**0.006**	**0.322**	**<0.001**
Italy		E14	**0.313**	**0.001**	0.136	0.054	**0.210**	**0.003**
		E15	**0.325**	**0.001**	**0.144**	**0.041**	**0.244**	**<0.001**
		E16	**0.266**	**0.007**	**0.173**	**0.014**	**0.218**	**0.002**
	Barriers	E17	-0.076	0.450	-0.039	0.577	**-0.165**	**0.019**
		E18	-0.004	0.966	-0.019	0.792	-0.118	0.096
		E19	0.032	0.750	0.019	0.784	0.034	0.628
		E20	-0.182	0.069	**-0.177**	**0.012**	**-0.168**	**0.017**
		E21	**-0.265**	**0.007**	**-0.204**	**0.004**	**-0.225**	**0.001**
		E22	0.025	0.802	-0.024	0.733	-0.115	0.102
		E23	-0.092	0.358	**-0.205**	**0.003**	**-0.157**	**0.026**
		E24	-0.160	0.110	**-0.173**	**0.014**	**-0.280**	**<0.001**
		E25	**-0.205**	**0.040**	**-0.160**	**0.023**	**-0.272**	**<0.001**
		E26	-0.103	0.303	**-0.168**	**0.017**	**-0.153**	**0.030**
		E27	0.051	0.613	-0.138	0.051	-0.125	0.077
	Drivers	E1	**-0.191**	**0.034**	0.098	0.157	**-0.169**	**0.015**
		E2	-0.016	0.860	0.097	0.163	-0.038	0.588
		E3	-0.161	0.074	0.017	0.804	0.001	0.996
		E4	**-0.219**	**0.014**	-0.029	0.672	-0.073	0.296
		E5	**-0.219**	**0.014**	0.049	0.477	-0.030	0.671
Lebanon		E6	**-0.209**	**0.020**	0.037	0.594	-0.126	0.068
		E7	0.014	0.880	0.031	0.658	-0.082	0.240
		E8	**-0.293**	**0.001**	-0.020	0.771	-0.030	0.662
		E9	-0.100	0.268	-0.008	0.913	-0.048	0.487
		E10	-0.046	0.615	0.077	0.269	**-0.151**	**0.029**
		E11	-0.142	0.116	0.011	0.875	-0.123	0.076

Country	Category	Item						
		E12	0.092	0.311	0.046	0.511	**0.154**	**0.026**
		E13	-0.141	0.119	0.021	0.766	**-0.214**	**0.002**
		E14	**-0.199**	**0.027**	-0.029	0.681	**-0.263**	**<0.001**
		E15	**-0.241**	**0.007**	-0.022	0.748	**-0.155**	**0.025**
		E16	-0.127	0.160	0.059	0.395	-0.040	0.562
	Barriers	E17	-0.039	0.664	-0.050	0.473	-0.066	0.342
		E18	**0.244**	**0.006**	0.112	0.106	**0.199**	**0.004**
		E19	0.154	0.088	0.082	0.240	0.122	0.078
		E20	0.108	0.231	-0.008	0.907	-0.039	0.575
		E21	0.107	0.237	0.011	0.869	0.026	0.714
		E22	0.074	0.412	0.118	0.088	**0.138**	**0.047**
		E23	0.088	0.332	0.048	0.488	0.131	0.059
		E24	0.172	0.057	-0.037	0.597	0.100	0.151
		E25	**-0.178**	**0.048**	-0.025	0.722	-0.104	0.132
		E26	**0.188**	**0.037**	0.074	0.287	**0.158**	**0.022**
		E27	0.026	0.773	0.049	0.477	**0.146**	**0.035**
	Drivers	E1	0.080	0.328	**0.209**	**0.003**	**0.175**	**0.013**
		E2	**0.168**	**0.040**	**0.325**	**<0.001**	**0.266**	**<0.001**
		E3	0.135	0.099	**0.265**	**<0.001**	**0.231**	**0.001**
		E4	0.090	0.272	**0.198**	**0.005**	**0.177**	**0.012**
		E5	**0.215**	**0.008**	**0.308**	**<0.001**	**0.256**	**<0.001**
		E6	0.035	0.666	**0.171**	**0.016**	**0.139**	**0.050**
		E7	**0.203**	**0.012**	**0.225**	**0.001**	**0.226**	**0.001**
		E8	0.133	0.104	**0.255**	**<0.001**	**0.285**	**<0.001**
		E9	**0.203**	**0.013**	**0.248**	**<0.001**	**0.235**	**0.001**
		E10	0.130	0.111	0.133	0.060	**0.180**	**0.011**
		E11	0.055	0.504	**0.152**	**0.032**	0.104	0.143
		E12	0.105	0.201	0.063	0.378	0.040	0.576
		E13	0.119	0.146	**0.176**	**0.013**	**0.252**	**<0.001**
Spain		E14	0.072	0.379	0.113	0.113	**0.234**	**0.001**
		E15	0.122	0.135	**0.173**	**0.014**	**0.206**	**0.003**
		E16	**0.186**	**0.023**	**0.143**	**0.043**	**0.188**	**0.008**
	Barriers	E17	0.030	0.715	-0.064	0.367	-0.035	0.620
		E18	-0.030	0.712	-0.045	0.528	-0.021	0.770
		E19	0.010	0.901	-0.105	0.139	-0.129	0.068
		E20	**-0.231**	**0.004**	**-0.209**	**0.003**	**-0.265**	**<0.001**
		E21	**-0.189**	**0.020**	**-0.276**	**<0.001**	**-0.250**	**<0.001**
		E22	-0.151	0.064	**-0.241**	**0.001**	**-0.168**	**0.017**
		E23	**-0.200**	**0.014**	**-0.266**	**<0.001**	**-0.189**	**0.007**
		E24	**-0.242**	**0.003**	**-0.290**	**<0.001**	**-0.202**	**0.004**
		E25	-0.148	0.069	**-0.165**	**0.020**	-0.045	0.529
		E26	-0.100	0.221	**-0.213**	**0.002**	-0.113	0.112
		E27	-0.111	0.176	**-0.166**	**0.019**	-0.070	0.323
	Drivers	E1	0.041	0.356	**0.160**	**<0.001**	0.006	0.867
		E2	**0.102**	**0.022**	**0.185**	**<0.001**	**0.071**	**0.043**
		E3	0.058	0.198	**0.143**	**<0.001**	0.069	0.051
		E4	0.038	0.391	**0.126**	**<0.001**	0.048	0.176
		E5	0.064	0.152	**0.149**	**<0.001**	0.061	0.082
		E6	0.064	0.156	**0.121**	**0.001**	0.032	0.369
		E7	**0.151**	**0.001**	**0.175**	**<0.001**	**0.075**	**0.032**
		E8	0.077	0.085	**0.138**	**<0.001**	**0.129**	**<0.001**
		E9	**0.117**	**0.009**	**0.108**	**0.002**	0.056	0.110
Total		E10	0.077	0.084	**0.086**	**0.014**	0.053	0.128
		E11	0.006	0.886	**0.086**	**0.015**	**0.074**	**0.035**
		E12	**0.088**	**0.049**	0.042	0.234	**0.120**	**0.001**
		E13	**0.106**	**0.018**	**0.114**	**0.001**	**0.092**	**0.008**
		E14	0.064	0.156	0.072	0.040	0.061	0.080
		E15	0.063	0.157	**0.085**	**0.015**	**0.107**	**0.002**
		E16	0.088	0.050	0.089	0.011	0.059	0.094
	Barriers	E17	-0.041	0.356	-0.028	0.426	**-0.102**	**0.004**
		E18	0.004	0.922	0.004	0.916	0.001	0.998
		E19	-0.022	0.621	-0.064	0.070	-0.051	0.150

E20	**-0.119**	**0.008**	**-0.116**	**0.001**	**-0.146**	**<0.001**
E21	**-0.114**	**0.011**	**-0.153**	**<0.001**	**-0.098**	**0.005**
E22	-0.065	0.145	**-0.083**	**0.018**	0.015	0.664
E23	-0.079	0.077	**-0.130**	**<0.001**	-0.030	0.398
E24	-0.077	0.087	**-0.134**	**<0.001**	**-0.075**	**0.031**
E25	**-0.138**	**0.002**	-0.052	0.137	**-0.106**	**0.002**
E26	-0.031	0.491	**-0.099**	**0.005**	-0.007	0.850
E27	-0.073	0.101	**-0.071**	**0.044**	-0.019	0.586

r: Spearman's rho correlation coefficient

A comparison of the relationship between KIDMED, MEDAS, and MEDLIFE and the individual factors and barriers that affect adherence to MD is shown in table 21. In the wole population studied, KIDMED scores positively correlated with E2, E7, E9, E12 and E13 drivers, and negatively correlated with E20, E21 and E25 barriers. Thus, as KIDMED scores increase, the rating of drivers E2 (lowers LDL level), E7 (tastier and more sustainable than other diet types), E9 (contains unprocessed and additive-free foods), E12 (includes lower priced foods), and E13 (has a positive effect on the environment) increases. As KIDMED scores decreased, E20 (proper food preparation is difficult and time-consuming), E21 (restrictive), and E25 includes high-priced foods) factors, which are barriers that make adherence to MD difficult, were found to be rated with higher scores. On the other hand, MEDAS scores were positively correlated with all drivers except E12, E14 and E16. Thus, as the MEDAS scores increase, the rating of the drivers E1 (has a positive effect on cholesterol level), E2 (lowers LDL level), E3 (it reduces the risk of mental disorders such as cardiovascular disease, diabetes, depression, cancer, and obesity) E4 (it contains healthier and more nutritious food), E5 (there is a higher consumption of fruits and vegetables and a lower consumption of red meat), E6 (includes more beneficial oils for health), E7 (tastier and more sustainable than other diet types), E8 (there is a higher consumption of fruits and vegetables and lower consumption of red meat), E9 (contains unprocessed and additive-free foods), E10 (associated with higher socialization and family relationships), E11 (access to food is easier), E13 (has a positive effect on the environment) and E15 (contains more local foods) increases. As the MEDAS scores decreased, the rating of barriers E20 (proper food preparation is difficult and time-consuming), E21 (restrictive), E22 (contains tasteless foods), E23 (diversifying recipes is difficult), E24 (It is difficult to implement as it conflicts with (Options in restaurants for affordable food are limited) cultural habits/beliefs/norms), E26 (the choices in grocery stores for affordable foods are limited) and E27 increased. Finally, MEDLIFE scores positively correlated with the drivers E2, E7, E8, E11, E12, E13 and E15, and negatively correlated with the barriers E17, E20, E21, E24 and E25. Thus, as MEDLIFE scores increase, the scoring of drivers E2 (lowers LDL level), E7 (tastier and more sustainable than other diet types), E8 (there is a higher consumption of fruits and vegetables and a lower consumption of red meat), E11 (access to food is easier), E12 (includes lower priced foods), E13 (has a positive effect on the environment) and E15 (contains more local foods) increases. As the MEDLIFE scores decreased, the scoring of barriers E17 (contains more allergenic foods), E18 (not applicable for vegans), E20 (proper food preparation is difficult and time-consuming), E21 (restrictive), E24 (It is difficult to implement as it conflicts with cultural habits/beliefs/norms), and E25 (includes high-priced foods) increased.

Table 22: Comparison of the relationship between KIDMED and the drivers and barriers affecting adherence to the MD

Country		KIDMED	
		r	p
	Drivers-Health	-0.078	0.387
	Drivers-Diet quality	0.093	0.303
Türkiye	Drivers- Applicability	**0.222**	**0.013**
	Drivers-Lifestyle	0.172	0.056
	Drivers-Affordability	0.086	0.341
	Drivers-Environmental factors	0.125	0.166

		r	p
	Barriers-Health	**-0.263**	**0.003**
	Barriers Lifestyle	-0.111	0.219
	Barriers Affordability	**-0.190**	**0.035**
Italy	Drivers-Health	**0.357**	**<0.001**
	Drivers-Diet quality	**0.394**	**<0.001**
	Drivers- Applicability	**0.209**	**0.036**
	Drivers-Lifestyle	**0.282**	**0.004**
	Drivers-Affordability	0.072	0.472
	Drivers-Environmental factors	**0.359**	**<0.001**
	Barriers-Health	-0.125	0.212
	Barriers Lifestyle	-0.160	0.110
	Barriers Affordability	-0.100	0.319
Lebanon	Drivers-Health	-0.112	0.217
	Drivers-Diet quality	**-0.269**	**0.003**
	Drivers- Applicability	0.014	0.880
	Drivers-Lifestyle	-0.168	0.063
	Drivers-Affordability	0.017	0.851
	Drivers-Environmental factors	**-0.197**	**0.029**
	Barriers-Health	0.139	0.124
	Barriers Lifestyle	0.172	0.057
	Barriers Affordability	0.041	0.650
Spain	Drivers-Health	0.135	0.100
	Drivers-Diet quality	0.137	0.094
	Drivers- Applicability	**0.203**	**0.012**
	Drivers-Lifestyle	**0.179**	**0.028**
	Drivers-Affordability	0.095	0.245
	Drivers-Environmental factors	0.123	0.133
	Barriers-Health	-0.156	0.055
	Barriers Lifestyle	**-0.242**	**0.003**
	Barriers Affordability	-0.143	0.080
Total	Drivers-Health	0.073	0.103
	Drivers-Diet quality	0.075	0.092
	Drivers-Applicability	**0.151**	**0.001**
	Drivers-Lifestyle	**0.124**	**0.006**
	Drivers-Affordability	0.068	0.129
	Drivers-Environmental factors	**0.096**	**0.032**
	Barriers-Health	**-0.100**	**0.026**
	Barriers Lifestyle	-0.077	0.087
	Barriers Affordability	**-0.097**	**0.031**

r: Spearman's rho correlation coefficient

The comparison of the relationship between KIDMED and the factors and barriers affecting adherence to MD, grouped by category, is given in Table 22. Considering the KIDMED scores for all participating countries, it was found that they were positively correlated to the drivers related to applicability, lifestyle, and environmental factors. As KIDMED scores increase, the rating of these factors also increase. Again, when the KIDMED scores for all participating countries were taken into consideration, it was found that there was an inverse correlation with health and affordability items, which are barriers that can reduce adherence to MD. As KIDMED scores decrease, the rating of these factors increase.

Table 23: Comparison of Drivers and Barriers Affecting Adherence to the MD according to the Medas group

	Country	MEDAS group									p
		Low Adherence			Acceptable			High Adherence			
		n	Median (Min-Max)	Mean ± sd	n	Median (Min-Max)	Mean ± sd	n	Median (Min-Max)	Mean ± sd	
Drivers-He...	Türkiye	56	4.33(1-5)[a]	4.16±0.91	107	4.67(2-5)[ab]	4.34±0.79	38	5(2.33-5)[b]	4.58±0.72	**0.029**
	Italy	55	4.33(2-5)[a]	4.13±0.79	108	4.67(2.33-5)[ab]	4.33±0.77	39	5(1-5)[b]	4.43±0.89	**0.032**

Category	Country	n	Median(range)	Mean±SD	n	Median(range)	Mean±SD	n	Median(range)	Mean±SD	p
	Lebanon	54	4(1.33-5)ab	3.96±0.78	108	4(1-5)a	3.79±0.89	47	4.33(2-5)b	4.25±0.72	**0.004**
	Spain	53	3.67(1-5)a	3.68±0.99	91	4.33(1-5)ab	4.08±0.89	56	4.83(2-5)b	4.34±0.83	**0.001**
	Total	218	4(1-5)a	3.99±0.89	414	4.33(1-5)a	4.14±0.86	180	4.83(1-5)b	4.39±0.8	**<0.001**
Drivers-Diet quality	Türkiye	56	4.67(2.33-5)a	4.42±0.64	107	4.67(3-5)ab	4.45±0.62	38	5(3-5)b	4.71±0.51	**0.027**
	Italy	55	4.33(2.67-5)a	4.32±0.67	108	4.67(3-5)a	4.47±0.55	39	5(1-5)b	4.64±0.76	**0.006**
	Lebanon	54	4.33(2-5)	4.12±0.77	108	4(1-5)	4.02±0.81	47	4.33(2.67-5)	4.33±0.65	0.087
	Spain	53	3.67(1-5)a	3.84±0.8	91	4.33(2.67-5)b	4.22±0.71	56	4.67(2-5)b	4.35±0.78	**0.001**
	Total	218	4.33(1-5)a	4.18±0.75	414	4.33(1-5)a	4.3±0.7	180	5(1-5)b	4.48±0.71	**<0.001**
Drivers-Applicability	Türkiye	56	4(1-5)a	3.73±1.14	107	4(1-5)ab	4.03±1.06	38	5(2-5)b	4.39±0.95	**0.010**
	Italy	55	4(1-5)a	3.98±1.01	108	5(2-5)ab	4.38±0.73	39	5(1-5)b	4.44±0.94	**0.013**
	Lebanon	54	4(2-5)	3.96±0.91	108	4(1-5)	3.81±1.01	47	4(1-5)	4.02±1.03	0.375
	Spain	53	3(1-5)a	3.66±1.04	91	4(1-5)ab	4±1.02	56	5(2-5)b	4.27±0.88	**0.006**
	Total	218	4(1-5)a	3.83±1.03	414	4(1-5)b	4.06±0.98	180	5(1-5)c	4.27±0.95	**<0.001**
Drivers-Lifestyle	Türkiye	56	4.17(2-5)	4.01±0.75	107	4.33(2-5)	4.06±0.76	38	4.33(2-5)	4.14±0.81	0.578
	Italy	55	4(2.33-5)	3.97±0.79	108	4.17(2-5)	4.13±0.73	39	4.67(1-5)	4.27±0.95	0.065
	Lebanon	54	4(2-5)	3.9±0.73	108	4(1-5)	3.83±0.84	47	4(2.33-5)	4.04±0.73	0.421
	Spain	53	3.67(1-5)a	3.64±0.84	91	4(1.67-5)b	4.06±0.75	56	4.33(2-5)b	4.18±0.74	**0.001**
	Total	218	4(1-5)a	3.88±0.79	414	4(1-5)ab	4.02±0.78	180	4.33(1-5)b	4.16±0.8	**0.001**
Drivers-Affordability	Türkiye	56	3(2-5)	3.5±0.99	107	3.5(1-5)	3.62±1.15	38	3.5(1-5)	3.57±1.27	0.730
	Italy	55	3.5(1-5)	3.45±0.97	108	3.5(1-5)	3.36±1.05	39	3.5(1-5)	3.5±1.06	0.700
	Lebanon	54	3.5(1.5-5)	3.6±1	108	3.5(1-5)	3.44±0.95	47	3.5(1-5)	3.61±0.93	0.534
	Spain	53	3(1-5)	3.18±1.03	91	3.5(1-5)	3.34±0.97	56	3(2-5)	3.46±0.91	0.277
	Total	218	3(1-5)	3.44±1	414	3.5(1-5)	3.44±1.04	180	3.5(1-5)	3.53±1.02	0.543
Drivers-Environmental factors	Türkiye	56	4(2.75-5)	3.91±0.66	107	3.75(2-5)	3.95±0.8	38	4.5(2.5-5)	4.18±0.82	0.198
	Italy	55	3.75(1.5-5)a	3.69±0.82	108	3.75(1.25-5)ab	3.83±0.83	39	4.25(1-5)b	4.06±0.87	**0.049**
	Lebanon	54	4(1.5-5)	3.66±1.04	108	3.75(1-5)	3.63±0.95	47	3.75(1-5)	3.71±0.99	0.867
	Spain	53	3.25(1.25-5)	3.41±0.96	91	3.5(1.5-5)	3.62±0.83	56	3.75(2-5)	3.8±0.98	0.084
	Total	218	3.63(1.25-5)a	3.67±0.89	414	3.75(1-5)ab	3.76±0.86	180	4(1-5)b	3.92±0.94	**0.016**
Barriers-Health	Türkiye	56	2.21(1-4.43)	2.32±0.89	107	2.14(1-3.86)	2.16±0.7	38	1.86(1-3.86)	2.02±0.82	0.220
	Italy	55	2.43(1-3.57)	2.33±0.58	108	2.29(1-5)	2.34±0.81	39	1.86(1-5)	2.08±0.88	0.063
	Lebanon	54	2.07(1-4.71)	2.12±0.76	108	2.29(1-4.86)	2.35±0.79	47	2.29(1-4.29)	2.27±0.8	0.209
	Spain	53	2.57(1-5)a	2.52±0.88	91	2.14(1-4)ab	2.16±0.82	56	1.93(1-5)b	2.01±0.87	**0.005**
	Total	218	2.29(1-5)a	2.32±0.79	414	2.29(1-5)a	2.26±0.79	180	2(1-5)b	2.09±0.84	**0.008**
Barriers-Lifestyle	Türkiye	56	2(1-5)	2.13±1.13	107	2(1-5)	2.43±1.42	38	1(1-5)	2.11±1.54	0.244
	Italy	55	2(1-5)a	2.25±1.02	108	2(1-5)ab	2.11±1.28	39	1(1-5)b	1.74±1.09	**0.035**
	Lebanon	54	2(1-4)ab	1.94±1.02	108	2(1-5)a	2.33±1.27	47	1(1-4)b	1.74±0.94	**0.017**
	Spain	53	3(1-5)a	2.58±1.05	91	2(1-5)b	2.01±1.14	56	1(1-5)b	1.86±1.05	**<0.001**
	Total	218	2(1-5)a	2.22±1.07	414	2(1-5)a	2.23±1.29	180	1(1-5)b	1.86±1.15	**<0.001**
Barriers-Affordability	Türkiye	56	2.67(1-5)	2.55±1.04	107	2.33(1-5)	2.42±1.12	38	2.5(1-5)	2.52±1.18	0.669
	Italy	55	2.33(1-4.33)	2.33±0.8	108	2.33(1-5)	2.36±1.01	39	2(1-5)	2.05±1.04	0.090
	Lebanon	54	2.67(1-4.33)	2.69±0.78	108	2.67(1-4.67)	2.68±0.81	47	3(1-4.33)	2.87±0.74	0.246
	Spain	53	3(1-5)a	2.89±0.86	91	2.67(1-5)ab	2.61±0.97	56	2.33(1-5)b	2.37±0.96	**0.005**
	Total	218	2.67(1-5)	2.61±0.9	414	2.67(1-5)	2.51±0.99	180	2.33(1-5)	2.46±1.01	0.126

*Although the overall comparison was significant, no difference was found between countries in the pairwise comparison.

Kruskal Wallis test was used for overall comparison. The Bonferroni test was used for pairwise comparisons. The "a", "b", and "c" superscripts show the results of pairwise comparisons between countries; values with unlike letters were significantly different among groups.

The comparison of drivers and barriers affecting adherence to the Mediterranean diet according to MEDAS groups is given in Table 23. Thus, if we split the participants according to their level of adherence to MD (high, acceptable or low, according to MEDAS score) we can see that in general, and as expected, participants with a high adherence to MD rated significantly higher the drivers to MD than participants with a low adherence to MD. Regarding barriers, participants with a high adherence to MD rated significantly lower the barriers related to health and lifestyle, although we did not find significant differences in those related to affordability.

4. Conclusions

- Among the surveyed adult participants in the four Mediterranean countries (Italy, Spain, Türkiye and Morocco), more than 30% were overweight and 14% were obese. The mean BMI among male participants was significantly higher than that of females and falled within the overweight range.

- 1/3 of the study population had a diagnosed chronic disease.

- The rate of individuals using vitamin supplements or having vitamin deficiency in this population was over 25%.

- The rate of participants who eat three main meals per day regularly was approximately 60%. However, a high proportion of the surveyed participants (46%) reported to usually skip a main meal, mainly breakfast.

- Most of the families (59%) always have dinner together although only 27% always have breakfast together. An important number of families always (20%) or usually (19%) allow their children watching TV during family meals.

- Regarding digital tools, almost all the families (96%) had a smartphone at home. Digital tools are mainly used for social network and communication. A high proportion of the parents (83.5%) allow their children to use digital tools, mainly the smartphone.

- The answers given by the participats to the questions "health status", "nutrition habits", "lifestyle", and "use of digital tools" varied statistically from country to country.

- The adult population of the Mediterranean countries in which the surveys were conducted (Türkiye, Lebanon, Italy and Spain) showed generally an acceptable adherence to the MD according to MEDAS index.

- Regarding MEDLIFE, this population presented an intermediate adherence to MD lifestyle, while a relevant proportion of the participants (31.5%) were classified in the first quartile showing a very low adherence to MD lifestyle. The rate of those who lead a life in full adherence with the Mediterranean lifestyle was only about 20% when the average of four countries is considered.

- 11.4% of the children showed poor adherence to the MD and almost 30% of the children presented an optimal adherence to MD, according to the KIDMED scale. In general, it was found that children showed mostly an average adherence to the MD.

- There were no differences between countries regarding MEDAS and KIDMED indexes, although Lebanon showed a greater adherence to MD lifestyle than the other countries, according to the results of MEDLIFE.

- The drivers to MD adherence that obtained the highest scoring in our population were (by order of punctuation): the MD is a diet that includes healthier and more nutritious foods (1), it contains healthier fats in MD (2), individuals with MD are encouraged to consume more fruits and vegetables and less red meat (3), MD is a diet with less processed food (4) and more homemade food consumption is possible with MD (5). These factors bring people closer to following the MD.

- The most relevant factors that prevent adherence to the MD (barriers) identified in our population were: MD contains high-priced foods (1), there are limited options in restaurants for individuals who want to apply MD (2), it is difficult and time consuming to prepare suitable meals (3), MD is not preferred because it is not suitable for vegans (4) and, MD contains allergen foods (5).

- A very few percentages of the studied population rated these barriers with a high score. While the main drivers obtained a score around 4 points, the main barriers scored around 2 points, on a 5-point likert scale. Thus, drivers seem to have a higher weight than barriers towards adherence to MD in this population, at least for the ones assessed in this survey.

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ANNEX 1

E. ATTITUDES TOWARDS MEDITERRANEAN DIET				
Mediterranian diet: The principal aspects of this diet include ratioally high consumption of olive oil, legumes, unrefined cereals, fruits, and vegetables, moderate to high consumption of fish, moderate consumption of dairy products (mostly as cheese and yogurt), and low consumption of non fish meat products. Rate the factors that encourage and hinder you and your family's adherence to Mediterranian diet (MD).				
ENABLERS				
		ITEMS	**Agree**	**Neutral**	**Disagree**
HEALTH	1	MD has a positive effect on cholesterol.			
	2	MD lowers LDL (bad) cholesterol levels.			
	3	MD reduces the risk of cardiovascular disease, diabetes, mental illness, depression, cancer, and obesity.			
DIET QUALITY	4	MD includes healthier and more nutritious foods.			
	5	MD is definied higher fruit and vegetable consumption and lower red meat consumption.			
	6	MD includes more beneficial oils for health.			
ADHERENCE	7	MD is tastier and more sustainable than other types of diets.			
LIFESTYLE	8	MD increases consumption of homemade foods.			
	9	MD includes more unprocessed and additive-free foods.			
	1	MD is associated with higher socialization and family relationships.			
AFFORDABILITY	1	Food access is easier in MD.			
	1	MD contains lower-priced foods.			
ENVIRONMENT	1	MD has a positive effect on the environment.			
	1	MD reduces human impact on the environment.			
	1	MD is associated with better carbon footprint.			
	1	MD contains more local foods.			
BARRIERS				

HEALTH	1	MD contains more allergenic foods.			
	1	MD is not applicable for vegans.			
	1	Food variety in MD is insufficient.			
	2	Preparing meals suitable for MD is difficult and time-consuming.			
	2	MD is restrictive.			
	2	MD contains unpleasant-tasting foods.			
	2	It is difficult to diversify food recipes in MD.			
LIFESTYLE	2	Following MD is difficult due to conflict with cultural habits/beliefs/norms.			
AFFORDABILITY	2	MD contains high-priced foods.			
	2	There are limited options in shops for foods in MD.			
	2	There are limited options in restaurants for foods in MD.			